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THE NAVAL AVIATION SAFETY REVIEW

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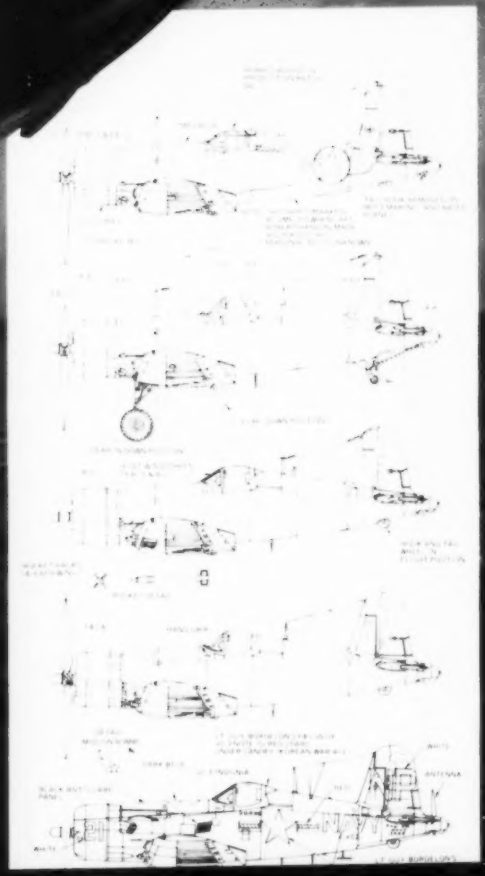

INADVERTENT ENGINE SHUTDOWNS

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at low altitude

UPON completion of a local test flight, a TA-4F pilot was cleared to break for landing at home field. The pilot entered the break at 1500 feet AGL, 300 knots and after a normal but "sharp" break to the right, he smartly retarded the throttle and dropped the speed brakes. As the aircraft passed 45 degrees angle-of-bank, electrical power was lost and engine RPM was noted passing below 48 percent. After about 50 degrees of turn, the pilot rolled the wings level, retracted the speed brakes to trail and put the emergency generator to on. Thereafter, the pilot attempted two airstarts without success.

The aircraft continued on its heading (50 degrees to the right of runway heading) in a 20 degree nose-down attitude until approaching a complex of administrative buildings. A witness on the ground observed the aircraft to zoom over the buildings at an altitude of 60 to 100 feet. At this time, the pilot initiated ejection which was successful. The aircraft continued in a 20 to 30 degree nose-down descent until impact in an unpopulated area.

It may appear that the pilot remained with the aircraft until beyond the prudent time for ejection but in so doing, he succeeded in gliding the aircraft over a densely populated area to a cleared field, thereby averting a potential catastrophe.

The cause for the loss of thrust could not be determined but in the absence of any identifiable material failure, the aircraft accident board considered it possible that the pilot may have inadvertently shut down the engine when he smartly retarded the throttle. The board noted that the right-hand break is contrary to the left-hand break which naval aviators normally execute. The possibility exists that the pilot's hand (holding the throttle) could have been forced outboard by centrifugal force during the break causing the pilot to move the throttle to *off* instead of *idle* as intended.

Inadvertent engine shutdowns at low altitude, while rare, are not rare enough. Other recent known or strongly suspected cases on record include an F-8, a TF-9J and several T-28s.

F-8

A flight of three aircraft (an F-8 and two A-4s) took off for a scheduled intercept training mission. The flight leader was in the F-8 and prior to takeoff, he briefed the two wingmen that upon completion of the intercept practice, the flight would enter the break in right echelon and break at one-second intervals. However, on the way back to the field, the flight leader briefed the wingmen on the radio to enter the break in a V-formation. The plan was for the A-4 on the left wing to break first, followed by the F-8 and the A-4 on the right wing, at one-second intervals.

After being cleared, the A-4 on the left wing broke, followed by the F-8 one second later. As the F-8 pilot broke, he retarded the throttle to an unknown RPM and lowered his speed brakes. He then retarded the throttle rapidly to what he thought was the idle position, without any conscious effort to maintain inboard pressure on the throttle. He then reached for the gear handle and after lowering the gear, raised the wing. Shortly after this the generator went off the line and he noticed RPM dropping rapidly. He then rammed the throttle forward without response.

The pilot later stated that he realized he had a flameout and felt that he had inadvertently shut the engine down instead of going to idle as intended. He then checked the engine master switch and dropped the EPP, but did not turn it on. He also lowered the wing in an attempt to stretch his glide. The pilot of the A-4C behind the F-8 observed a white cloud emitting from its tailpipe. The emission was so intense that the A-4 pilot thought the F-8 was on fire. As he keyed the mike to warn the F-8 pilot, the F-8 yawed to the right and began to roll. The F-8 pilot successfully ejected from the aircraft at about 700 feet AGL and 80 degrees nose-down attitude. The aircraft continued to spiral to the right until impact with the ground.

Investigators concluded that the pilot had inadvertently shut the engine down during the break and that the white cloud which emitted from the tailpipe was raw fuel.

The aircraft accident board noted that although the break from echelon is not prescribed in any operating manual, including the station operations manual, it has

T-28 crashed into trees after low-altitude power loss.

become a standard operating procedure through long usage. Therefore, the V-formation used in this break must be considered a deviation from SOP.

2 Another point worth mentioning is the fact that this formation included dissimilar aircraft. It has long been recognized that such formations demand extra caution. Yet, in this case, the F-8 broke one second after the A-4. Due to the fact that an A-4 will decelerate faster than an F-8, the possibility of an overrun may have been a factor in the pilot's bringing the throttle back to what he thought was idle.

The aircraft accident board also noted that the pilot violated NATOPS procedures in that he attempted relight procedures below 1500 feet and 250 knots rather than initiating an immediate ejection upon recognizing that the aircraft had flamed out.

TF-9J

This accident involved a student pilot nearing the completion of a solo syllabus flight. It had some similarities with the accidents just recounted in that the student made a *right-hand* break and after the flameout, he delayed ejection while attempting airstart procedures below the minimum altitude prescribed in NATOPS. In this case, the student pilot broke at 300 knots, pulling 3G, retarding the throttle to 75 percent and extending the speed brakes. He then realized he was going to be fast at the 180-degree position so he retarded the throttle even further. At 220 knots, the student pilot lowered the gear and leveled his wings. As he placed his hand on the flap handle, he noticed that the stick felt "sluggish." He observed the wheels warning light on. This attracted his attention to the nearby low fuel boost pressure warning light which was also on. He then noted the engine emergency fuel system indicator light and engine fuel pump warning lights were both on. At this time he noted airspeed dropping from 170 to 150 knots. He attempted to pull the airstart emergency control handle; however, it would not move. He then retarded the throttle to the off detent and switched from primary to manual fuel system. Once again, the pilot attempted to pull the airstart emergency control handle, but it would not move. The pilot then scrubbed the igniters with the throttle and brought the throttle lever forward slightly past the idle detent. Nothing happened so the pilot decided to eject. The ejection took place at about 500 feet and was successful but the *pilot* suffered major injuries. The aircraft crashed and was destroyed.

Based on an interview with the pilot and a thorough investigation of other potential factors in this accident, the aircraft accident board concluded that the pilot had inadvertently retarded the throttle to off instead of idle. There was also evidence that components of the fuel system were malfunctioning at the time but these were not considered to have caused the flameout.

Prop Aircraft Also Susceptible

All three of the accidents recounted involved jet engine aircraft, each having a single lever for throttling the engine and for shutting it down. Reciprocating

engine aircraft, of course, have more than one lever which must be manipulated for power control, i.e., prop, mixture and throttle. Prop aircraft can be (and have been) shut down inadvertently, but because of the differences in power controls, the shutdowns seldom if ever occur in the break. Rather, the hazard seems to be greatest immediately after takeoff when two of the three power controls must be routinely manipulated. Specifically, the problem seems to be that the fuel mixture control is incorrectly selected and retarded instead of the prop control, as intended. In three of the four cases considered, solo flight students were flying the aircraft. In a fourth case, a student was flying the aircraft from the front cockpit but there was an instructor occupying the rear seat. In this case, when the engine quit, the instructor took over, attempted to restart it and when this failed, successfully crash landed the aircraft without injury to either occupant.

In one case, a solo student pilot entered the touch-and-go pattern at an outlying field after completing his high work. On the second approach, the student executed his own waveoff to the left of the runway after having overshot the centerline. After what appeared to be a normal waveoff, the wheels watch switched his attention to the next aircraft in the pattern. Shortly thereafter, the wheels watch heard the aircraft which was waving off reduce power, followed by what sounded like two or three backfires. He turned in time to see a fireball rising out of the trees. The student pilot was fatally injured, and the aircraft destroyed.

After an extensive investigation, including several interviews with the wheels watch (seven months experience), the board concluded that the power reduction was most probably a "cut" rather than a normal power reduction. The board listed the cause of this accident as undetermined but concluded that the most probable cause was inadvertent retardation of the mixture lever to the idle cutoff position.

Design Changes

These accidents have provided the impetus for at least two modifications to the T-28 throttle quadrant (T-28 AFC 103 and AFC 103 Revision A); however, neither of these have been completely effective in providing effective warning/resistance to the inadvertent retardation of the fuel mixture control lever. The basic problem seems to be that, given the standard throttle quadrant design which has been with us since time immemorial, any mixture control which can be intentionally operated in a reasonably free manner can also be operated inadvertently by a pilot who is sufficiently preoccupied or under stress. Nevertheless, design change efforts are continuing.

A number of jet aircraft have also been the subject of various fixes intended to make inadvertent shutdowns less likely, if not impossible. But, the same design problem exists in jets as in props, i.e., any control which can be intentionally operated with reasonable ease can also be operated without specific intent given the right set of circumstances.

TF-9J engine shutdown during right-hand break.

Precautions

Pending revolutionary changes in throttle quadrant design (which do not appear to be in the offing), it appears that the best remedy for the problem is to increase the training and education of individual pilots. To this end, one prop training squadron has incorporated procedures in their training program which calls for pilots to make power settings by two different, distinctive hand movements, creating a habit pattern for the student which will minimize the possibility of inadvertent operation of the wrong lever.

Pilots of jet aircraft can also effectively guard against inadvertent shutdowns by observing certain precautions:

- Avoid rapid (or rough) throttle movements, as a general rule.
- Adopt the general practice of maintaining slight inboard pressure on the throttle as it is moved from setting to setting.
- Adjust friction to that desired but insure that it is sufficiently tight so the throttle will not be moved unintentionally either by the pilot or inertia.
- Use special care when retarding the throttle during *right-hand* breaks or during high-G, right-hand turns. ◄

DON'TS

THIS is one of the most basic lessons which a student naval aviator learns. Just to be sure it takes, the student receives many stall demonstrations and is required to spend considerable time practicing stalls and recoveries. The purpose being, to enable him to recognize the approach to a stall and hopefully avoid it. Failing that, the student learns to recover from a stall in the safest and most expeditious way possible. This type of training continues even after the student is designated a naval aviator. In fact, it is part of the checkout process in any new aircraft, regardless of the experience of the pilot.

This would seem to be sufficient to eliminate stalls as a factor in aircraft accidents but the record shows otherwise. Unintentional stalls continue to take a toll in lives and aircraft.

There are many types of stalls but they may be broadly categorized as low speed or high speed stalls. The high speed stall usually occurs during tactics or aerobatics. These have been covered in considerable detail in other APPROACH articles and will not be discussed now. It is the low speed stall with which we are primarily concerned here.

TF-9J Stall in FCLP Pattern

A student naval aviator in advance training was flying a TF-9J during his second FCLP (field carrier landing practice) period. His first period had been flown on the previous day.

The takeoff and entry into the FCLP pattern was accomplished without incident. The student was waved off by the LSO on his first approach due to excessive reduction of power in the groove. The LSO recorded the following comments for this approach: "Waveoff, little long in the groove, low start, excessive climb in middle, excessive settle in close." In addition, the LSO verbally admonished the student not to reduce power to the idle position in the groove.

On the second approach, the student called the ball with 3500 pounds of fuel aboard. The LSO's recorded comments for this approach were: "Waveoff, low start, high coming down in close and a stall." The LSO's verbal comments included a warning for the student not to stall the aircraft. However, on the waveoff, the aircraft rotated initially to a slightly nose-high attitude and then

TF-9J stalled in FCLP pattern.

TSTALL!

to an excessive nose-high attitude. The right wing dropped approximately 30 degrees and then the wings leveled momentarily. The aircraft then rolled left to an inverted position and crashed. The student was fatally injured.

The aircraft accident board determined that the stall was pilot-induced and that all aircraft systems were operating normally at the time of impact. No determination could be made as to *why* the student allowed or induced the aircraft to stall.

Fatal T-28B Accident

An instructor pilot reported the break for the landing runway at a naval air station. He was cleared by the tower and commenced a left break very close to "right over the numbers." The aircraft was never in a wings-level attitude after this point. The abeam position was high and close to the runway. The pilot reported his landing gear down and locked and stated his intention to make a final landing. He was cleared by the tower and was issued a traffic advisory concerning a helicopter on a VFR GCA final. The pilot reported negative visual contact with the helicopter and was advised by the tower that he was cleared to land and was well in front of the helicopter.

The turn to final was made with an estimated 30 to 45 degrees of bank, with a rate of descent estimated at 3000 fpm. The aircraft appeared to overshoot the centerline (extended). At an estimated altitude of 100 feet or less, the pilot increased the angle-of-bank to correct back to centerline, pulled the nose up to slow the rate of descent and probably allowed the aircraft to go out of balanced flight. The pilot added power but the aircraft stalled and began an uncontrollable left roll with the nose slightly high. The left wing contacted the ground as the bank increased to about 80 degrees. The aircraft was destroyed and the instructor pilot received fatal injuries. The student pilot escaped with minor injuries.

The aircraft accident board concluded that the accident resulted from a pilot-induced stall. Indications are that the pilot maintained approximately a double standard rate turn and an excessive rate of descent throughout the approach.

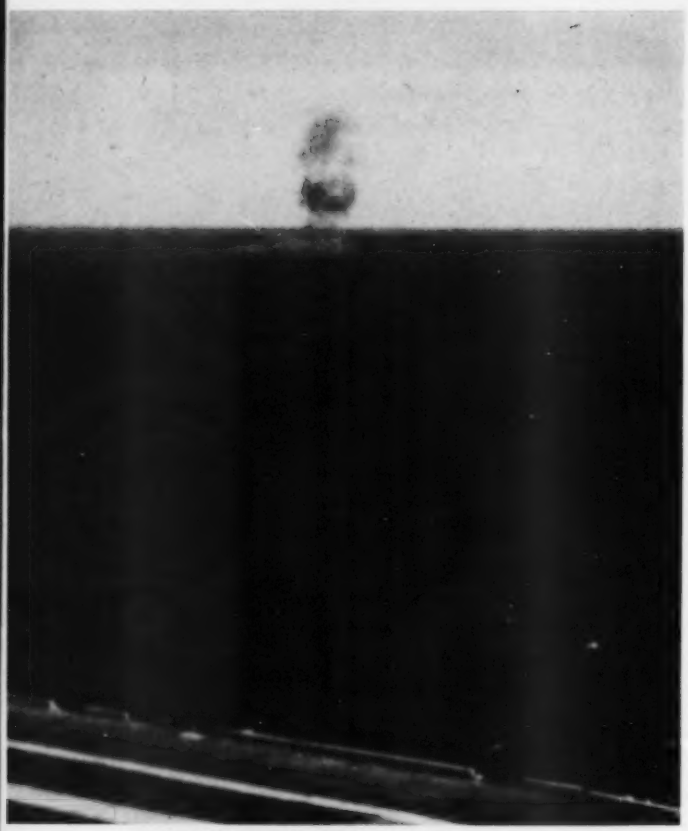
T-28 after a wrapped-up approach.

Fatal T-2C Accident

The T-2C instructor involved in this accident was acting as a safety pilot for student carrier qualifications. At the time of the accident he was on his third flight of the day. His first flight of the day was a standardization check flight which his check pilot graded as excellent, noting only minor procedural errors.

The second flight of the day took place early in the afternoon. It originated ashore but terminated with a landing aboard ship for the purpose of refueling. The leader of the carrier qualifications group had already flown ashore with some of the students, and after the refueling the T-2C instructor pilot was to rendezvous the remaining students and lead them ashore.

After taking on a full load of fuel, he was launched and climbed to the overhead safety pattern (2000 feet altitude, within a two-mile radius of the ship). About 20 minutes into the flight, the pilot was observed by personnel on the ship to be nearly overhead, in relatively steep, high angle-of-bank turns. (In retrospect, this appears to have been an effort on his part to observe the



The T-2C is believed to have stalled.

deck and to position his aircraft to facilitate speedy and easy rendezvous with the students as they launched from the ship.) The aircraft was observed to go into a "backward loop," then recover in a steep nose-down attitude at about 1000 feet. The aircraft then apparently entered a progressive stall, followed by steep nose-down poststall gyrations, impacted the water and exploded.

Just prior to impact, ejection was initiated – outside the safe ejection envelope. Only the canopy and rear seat were observed to separate from the aircraft. Subsequent search and rescue efforts were unsuccessful.

The cause of this accident could not be determined. Since the aircraft was not recovered, the possibility of material failure/malfunction could not be ruled out, however, the aircraft accident board concluded that the most probable cause was an unintentional pilot-induced stall. The investigators surmised that the pilot may have been flying the pattern at a speed somewhat slower than the normal 200-knot rendezvous speed in order to conserve fuel, a common practice well within the capabilities of the aircraft. However, because of his intense interest in keeping the ship and students in sight (as they launched), he may have over-controlled/overbanked the aircraft causing it to stall.

Discussion

There is little firm evidence as to *why* these pilots allowed themselves to stall. All of them can be assumed to have received considerable instruction/information on stall characteristics, not only for the aircraft they were flying, but for aircraft in general. This most certainly included information on the effect of increased angle-of-bank/increased weight in raising the stall speed.

In the case of the TF-9J student, the record shows that he was a below average flight student and that he displayed dangerous tendencies in his field carrier landing practice in basic training, as demonstrated by unsatisfactory and below average grades in "error detection" and "error correction." In advance training, he had experienced some problems with landing approaches, usually in the area of the 45-degree position. However, he seemed to be able to get the aircraft back into proper position in most cases.

The relationship between the accident and these difficulties, if any, cannot be determined. But, it is entirely possible that because of these deficiencies, pattern and procedures occupied the student's attention to such an extent that he was unable to fulfill the basic requirement to control the aircraft safely.

In the two accidents involving instructor pilots, lack of restful sleep may have been a factor. The T-28B pilot was in the process of planning a leave period and is believed to have spent a large part of the night previous to the accident packing, writing letters, etc., although this could not be positively verified. In addition, there is the possibility that preoccupation with personal affairs may have caused him to underestimate the hazard of trying to salvage a poor approach.

The T-2C pilot is known to have had less than five hours sleep on the night preceding the accident. In addition, he commented to fellow pilots that he had not slept well. It is certainly conceivable that this lack of restful sleep, followed by 12 continuous hours of flight or flight-related activity could have reduced his alertness or at least his capability. This, coupled with an apparent intense desire to keep track of all operations on and around the ship, could have caused him to give insufficient attention to the basic job of safely controlling his aircraft.

Eliminating unintentional low-speed stalls which occur under normal operating conditions seems to be a matter of always giving priority to the most basic requirement – flying the aircraft. Don't let fatigue, preoccupation or concern for procedural matters distract you from this task. First, fly the aircraft. Then take care of other matters as best you can. ◄

Major General R. G. Owens, Jr., in his memorandum appearing in the January '71 issue of the Third Marine Aircraft Wing Safety Review, made some very pertinent comments concerning deferred aircraft discrepancies. What he said and how he said it is considered extremely relevant and is printed below for the benefit of all personnel engaged in flying or maintaining Navy and Marine aircraft.

MEMORANDUM from the Commanding General

A REVIEW of the seven major and one minor aircraft accidents which have occurred so far this fiscal year discloses, among other things, that in three of these accidents the aircraft involved were being flown with deferred discrepancies. Although these were not in any of the three cases the primary or even the proximate cause of the accident, they were nevertheless in each case part of the chain of contributing factors which culminated in the loss of two aircraft and substantial damage to a third.

Of course, the immediate comment can be made that "The crew should not have accepted the aircraft," or "Maintenance control should not have released it." But is that really the whole story? Isn't what your crews are willing to accept and what your maintenance control releases for flight a reflection of the standards and priorities set by the unit commander and the degree to which these standards and priorities are adhered to by unit supervisors? When operations and maintenance are squeezed by external pressures such as administrative and material inspections or holiday routines, you have to compromise. If you compromise your schedule, you produce less output (quantity). This is a hard and unpopular compromise to make. So the desire to maintain output may tempt you to borrow on the future – in other words, to support this week's schedule with next week's maintenance. The only way you can do this is to compromise standards (quality).

There are two reasons why this is counter-productive. First, you run the immediate danger of something getting away from you – of a malfunctioning or not fully equipped airplane getting into a situation where failure or nonavailability of the *deferred* or *awaiting parts* system results in an emergency which culminates in an accident. Second, what you borrow you have to pay back, and some more besides. Carrying this week's *gripes* doesn't just mean twice as much work next week – it means three or four times as much work, and invariably the interest has to be paid from your output. So you end up having to compromise next week's schedule anyway, and you lose more output next week than you save this week.

We don't expect you to NORSG every airplane for every write-up. We know you can and do defer items not essential to the assigned mission. What we do expect is that you not try to perform the mission without necessary mission-essential equipment. Remember, you can't get something for nothing, in this or any other business. If you try, you may lose something – or someone.

☆☆

Short Snorts

Some peoples' mouths work faster than their brains.
They say things they haven't even thought of yet.

Ace. L.

Hands Full

TWO pilots in an S-2E were catapulted for bounce drill and soon realized the hop was anything but routine. After one arrested landing and deck run, normal elevator trim failed with two degrees UP trim set. Emergency trim was selected but the pilot was still unable to trim nose down. Circuit breakers were reset without any change in trim. While attempting to further trim nose down (procedures not specified) an additional four degrees UP trim was inadvertently set. The pilot called for a final landing without stating the reason and as bad luck would have it he got a fouled-deck waveoff. Guess what happened when he picked up the gear and poured on the coal? Yep, the nose went way up but the pilot showed what stuff he was made of by reducing the power a little and dropping the gear before he stalled and was able to gain control. He continued the approach, caught a No. 3 wire on the next pass and subsequently secured the bird.

The simultaneous failure of the normal and emergency nose trim controls is rare. It would seem appropriate to caution pilots of the possibility of aggravating a relatively minor problem while attempting to troubleshoot a discrepancy while airborne. However, when a problem arises while airborne let the tower know so that others can be prepared to assist.

Preoccupied

A T-2C student pilot manned his aircraft for a night solo flight. He was preoccupied with personal problems and was tired. He performed the takeoff checklist in a cursory manner and failed to ensure the canopy was closed. In fact, the canopy was probably full open at takeoff but the student was unaware of this.

After takeoff, he noticed airframe buffeting, inability to accelerate and thought he had engine problems. It was not until he reached 2000 feet and 200 knots that he realized that his canopy was open. He then attempted to electrically close the canopy. When this failed, he attempted to jettison the canopy, also unsuccessfully. He then dumped his tiptank fuel and made an uneventful landing.

When later questioned, the student stated that, although he recognized that he was preoccupied with personal matters and was tired, he was reluctant to request that the flight be canceled because of fear of censure.

The commanding officer, commenting on this incident, stated:

"This incident had the extreme potential of a tragic and senseless accident. Accordingly, this command has taken the following action to ensure that such an incident will not recur:

- All pilots have again been reminded to guard against the tendency to 'press on' when confronted with unfavorable conditions.
- Supervisory personnel will emphasize in student indoctrination lectures the hazards of flying with personal problems and fatigue.
- The necessity for meticulous use of checklists by all pilots has again been emphasized.

"That this student would feel a reluctance to cancel his flight for fear of criticism is a continuing problem and appears to stem from an erroneous belief that while in the capacity of student aviator, one must not indicate weakness in any manner. It is most probable that the student's preoccupation with his personal problems and fatigue did contribute to his failure to lower the canopy prior to takeoff."

Good Show

A STUDENT pilot was making a simulated instrument takeoff from the rear cockpit of a TF-9J. After normal runup and acceleration to 130 knots, the instructor noted a power loss immediately after liftoff, with a

slow surging effect. The instructor immediately took control of the aircraft, landed from an estimated 20 feet of altitude with 130 knots, secured the engine, dropped the tailhook and made a successful engagement of the E-28 abort gear.

The power loss was due to internal engine failure as evidenced by curled rotor blades with large magnesium deposits and magnesium deposits in a barber-pole pattern in the tailpipe.

Prompt and correct action by the instructor pilot undoubtedly prevented a serious accident. The performance of the E-28 arresting gear was excellent. Not only was the engagement at high speed and high gross weight but it was far to the right of the center and straight down the runway. The rollout was straight ahead with little yawing motion.

Good show!

Ruffled Feathers

DURING takeoff on a P-3B pilot training flight, the instructor pilot retarded the No. 4 power lever to flight idle, simulating an engine failure after refusal speed. The student incorrectly called for feather of No. 1. To emphasize the seriousness of the error, the instructor pilot momentarily retarded No. 1 power lever to flight idle, simulating feather of the engine. The No. 1 power lever was then rapidly advanced toward normal rated power to maintain the climb. As the power lever was moving forward, the engine autofeathered. Since a NTS (negative torque sensing) check had not been performed, no relight was attempted. The Engine Shutdown Checklist was completed, the instructor pilot changed to the left seat and an uneventful landing was made at the NAS.

The C.O. made the following observations in his comments relative to this incident:

"The automatic feathering system worked as advertised. Postflight inspection disclosed normal functioning of the system.

"This is the second instance of a pilot-induced autofeather in this command. While the previous incident occurred nearly two years ago, it points out a weakness in the safety education program for squadron pilots, in particular, instructor pilots. Without continued emphasis being placed before pilots, crewmen and maintenance personnel, the causal factors for such incidents and the lessons learned from those incidents are sure to be forgotten and history repeated again. Corrective action to prevent recurrence of identified human error incidents has been initiated and continued emphasis has been directed."

A Moment of Darkness

THE PILOT, copilot, an aircrewman and two passengers boarded an S-2E for a night flight to the beach. On the catapult shot all lights went out halfway through the stroke. Maintaining fixed controls, the pilot and copilot reached for flashlights. A yaw developed which the pilot had trouble correcting. Illumination of the instruments with flashlights showed that the aircraft was climbing through 100 feet and that one throttle had slipped back causing the yaw. The pilot's VGI and rudder assist were also inoperative. Control of the aircraft was quickly regained.

A crewman was sent aft to investigate and found that the boarding ladder had smashed aft on the catapult shot, popping the a.c. essential power circuit breakers and shearing the utility light and liferaft circuit breakers. The crewman was able to reset the a.c. essential power circuit breakers and utility light circuit breakers. The aircraft continued inbound to the beach and made a normal landing.

This mishap was caused by the ladder coming loose on the catapult shot. However, inspection of the ladder, door brackets and bungee revealed no defects. In addition, a squadron chief petty officer stated that the ladder was properly hung and bungeed as he closed the hatch behind the passengers. It is suspected that as the hatch was closed the ladder was pushed up by personal gear stowed just inside the hatch, allowing the ladder to come loose on the catapult shot.

The commanding officer made the following comments:

"The pilot handled the emergency in a highly professional manner.

"The passageway inside the hatch is a favored place to secure equipment. The possibility of the equipment dislodging the ladder is a definite hazard. Flight crews and maintenance personnel in the squadron have been alerted to prevent this from occurring.

"The pilot turned off his d.c. floodlights on deck because of trouble seeing the taxi directors. The desirability of having both d.c. and a.c. instrument lighting available at the critical transition time of a night catapult shot is obvious and will continue to be recommended procedure in this squadron.

"Several pilots in the squadron have been carrying right angle Navy-issue flashlights in the front pocket of the SV-2 survival vest. The flashlight, turned on before catapult shots, can provide 'hands off' backup illumination for the attitude gyro. This procedure appears to have merit and right angle flashlights are being ordered for all pilots in the squadron." ◄

Controllers:

MERCURY, Gemini and Apollo flights which have constituted the American space program thus far have exposed literally millions of people, who have watched and listened on TV and radio, to the details of controlling space flights. There is no intent to knock the controllers of space flights but the complexities of their job are greatly reduced by virtue of clear channels and only one spacecraft to communicate with in comparison to the job that faces controllers aboard an aircraft carrier, a naval air station or a major civilian airport. However, valuable lessons can be learned from the capsule controllers as to the precise way in which they issue directions and instructions.

A study was made of Navy mishaps involving controllers during a two-year period, FY 69 and FY 70. As depicted in Fig. 1 there were 73 mishaps in which controllers were assigned either primary cause or contributing cause. Controllers, in this sense, are defined as personnel in direct control of aircraft. This includes tower, GCA, Pri-Fly, Air-Ops, CCA, GCI and LSO/LSE personnel.

Mishaps Involving Controllers

	FY 69	FY 70
Primary cause	11	10
Contributing cause	34	18
Total	45	28

Fig. 1

Three of the mishaps in which controllers were found to be contributors are presented as examples:

• After two unsuccessful attempts to drop a banner in the designated area the pilot of an F-9 informed the tower of the problem and advised that he would try to drag the banner off utilizing special gear on the ground. The tower controller replied that the gear for that purpose was not rigged and that an attempt to drag the banner off on the terrain under tower control would be attempted. The pilot was directed to begin an approach but was to maintain 500 feet until further advised. At the appropriate time the pilot was directed to begin a descent but the tower controller did not allow sufficient clearance over some power lines at the approach end of the field and the banner engaged the wires. No damage to the aircraft occurred nor were there any personnel injuries but the power outage which resulted in the

s: Take Charge!

community and the cost to repair the lines was considerable.

• While rolling out after landing the pilot of a T-28 requested permission to turn off at an intersection 4000 feet short of the end of the runway. He was cleared as requested and turned off on what appeared to be a taxiway turnoff. The aircraft continued over a hard graveled surface, struck a four-inch asphalt ridge and collapsed the nose gear strut. Substantial damage to the aircraft resulted but there were no personnel injuries.

• A flight of two aircraft, an H-2 and H-3, were launched on a crossdeck ferry flight. Enroute an unsuccessful attempt was made to refuel aboard a ship along the route of flight. Both aircraft departed this ship to their destination on an erroneous vector. The pilots questioned the vector but were given the incorrect heading numerous times. The H-2 ultimately ran out of fuel about 50 miles from destination after several corrections by the controllers had finally headed them in the right direction. Fortunately the H-3 had enough fuel and picked up the four-man crew of the H-2 and delivered everyone safely to their destination. However, one good H-2 was lost unnecessarily.

The statistics in Fig. 2 reveal that the casualty toll of the mishaps reviewed was very high. The number of fatalities and injuries should make it abundantly clear that controllers do have a responsibility for the safety of pilots, crews and passengers.

Personnel Casualties From Mishaps Involving Controller Error

	FY 69	FY 70
Fatal	18	10
Major	3	1
Minor	3	3
Total	24	14

Fig. 2

One other set of statistics which is revealing is the information shown in Fig. 3. The different models involved in the mishaps represent a good cross section of

Aircraft Damaged

Mishaps	Model	FY 69 Damage	FY 70 Damage
1	A-1	E	—
2	A-3	A/E	—
8	A-4	C/D/4E	A/D
3	A-6	2E	E
3	A-7	3C	—
1	C-117	—	A
1	C-130	A	—
3	E-1	A/D/E	—
3	E-2	—	E/2F
14	F-4	4A/D/3E	2A/3E/F
10	F-8	3A/E	A/5F
5	F-9	A/E/F	A/C
2	H-1	A	E
2	H-2	A/F	—
2	H-46	—	C/F
2	H-53	F	F
1	OV-10	F	—
7	S-2	D/2E/2F	D/E
1	T-28	C	—
1	T-33	E	—
1	T-39	—	E
73		13A/5C/4D/17E/6F	6A/2C/2D/8E/10F

Key: A – Destroyed
C – Substantial
D – Minor
E – Limited
F – None

Fig. 3

Controller Errors

Errors of Omission

Did not advise. (Wind, weather, runway conditions)	12
Failed to request gear check.	3
Not conscious of runway conditions. (Fog, snow banks)	3
Did not warn pilot of terrain hazards.	3
Did not control vehicular traffic on airport.	2
Did not coordinate with GCA.	2
Did not coordinate VFR departure into IFR conditions with ARTCC.	2
Failed to detect flight entering hot/warning area.	2
Failed to position aircraft for approach lineup.	2
Failed to follow No. 2 on scope when No. 1 got low.	1
Failed to take any action on declared emergency.	1
Failed to advise aircraft of other known traffic.	1
Did not acknowledge aircraft bingo declaration.	1
Failed to light arrows for runway arresting gear.	1
Aircraft landed on fouled deck into the sun. Waveoff lights were not turned up full and UHF warning was on wrong channel.	

Errors of Commission

Issued improper clearance.	6
Gave incorrect information.	3
Issued incomplete taxi instructions.	3
Directed aircraft to turn the wrong way.	2
Gave routine clearance to land when GCA/other controllers were landing traffic in opposite direction.	2
Issued No. 2 routine clearance to land when No. 1 was making an emergency approach.	1
Gave clearance to air taxi over congested area.	1
Issued PAR instructions to wrong aircraft on approach.	1
Gave PAR instructions for an approach to a runway with severe crosswind when a better runway was available.	1
Vectored aircraft into a thunderhead even though diversion in any direction was possible.	1

Fig. 4

the Navy's inventory of aircraft. Unfortunately about 26 percent of the aircraft were destroyed. Add to this the number of aircraft substantially damaged and this means aircraft mishaps caused by controller error are quite costly.

A further look into the facts behind controller error reveals the kind of mistakes which one might suspect any group of human beings would make. There are those which can be attributed to carelessness, several to indifference, a few to pressure or tempo of operations, one or two to misunderstanding of directions, some to lack of supervision of a trainee controller and a couple of out-right goofs. All are correctable. All can be prevented. The goal, of course, is to eliminate the reasons why controllers permit "things to get out of hand." Figure 4 lists the majority of errors committed by controllers during FY 69/70. Operations officers, supervisors and controllers must take continued positive action in the elimination of these errors in an effort to improve the safe control of aircraft. ◄

O wad some pow'r the Giftie gie us
To see oursels as ithers see us
It wad frae many a blunder fre us.

Robert Burns

Ensure Proper Identification

MY FLIGHT was inbound to the airport, in the soup, when I was switched over to approach control. Approach control said, "Ident. Descend to 4000, call level." About five minutes later we called, "Level at four" and approach control immediately came back with, "Descend to three thousand." No flight identification preceded their transmission but they came back so quickly after our call that we assumed it was for us so we called, "Out of four for three" and continued our letdown to 3000 feet. No "Roger" from approach control! About five minutes later, approach control advised, "Traffic eleven o'clock, six miles, level three thousand, slow speed. You'll pass over him." We came back, "Roger, we're on instru . . . BUT WE'RE AT THREE!" "You are?" Then turn left 180 degrees."

We didn't come within three miles of the other aircraft but a postflight review of the tapes showed up an interesting peril. You may have guessed what happened. Approach control cleared the guy ahead to three thousand just as we keyed the mike to call, "Level, four." Thus, our transmission blocked the flight identification part of the clearance and when we let up on the mike key it was just in time to hear the last part of the descent clearance. The controller didn't hear our, "Out of four for three" because one of us was on UHF and the other on VHF and the other guy was closer in saying essentially the same thing. It sure is lucky that controller decided to give us the traffic advisory when he did.

As far as preventing a recurrence of this, a positive identification of every clearance given and a positive acknowledgement would have prevented this. I'm going to be more careful along those lines and maybe this *Anymouse* will help someone else to do the same. (I think I'll keep going to church, too.)

Instrument Mouse

Amen!

The purpose of Anymouse (anonymous) Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hazardous or unsafe aviation experiences. These reports need not be signed. Self-mailing forms for writing Anymouse Reports are available in readyrooms and line shacks. All reports are considered for appropriate action.

REPORT AN INCIDENT, PREVENT AN ACCIDENT

Get-Home-Itis?

IT WAS NEAR the end of a long cross-country flight. Our S-2E type aircraft was on the final leg to the barn. It had been a long weekend of tiring activity crowded into a short span of time. Sleep had been low on the priority list. Flight planning had been thorough but the fueling stop on our stopover VFR flight plan had been longer than expected because of an emergency that had closed the field for over an hour.

Talking to other pilots who had come from the way we were going, we discovered that our VFR weather had developed into a broken deck at 5000 feet further along the route and that partial light icing had been encountered. So, nine hours after our morning takeoff we flew into the air again, VFR, but prepared to file enroute if we ran into adverse weather.

It was night but visibility was good and after 30 minutes we began to see clouds ahead, at 5500 feet, just where they had been reported to be. We continued our flight but the clouds became thicker and the breaks less frequent. We had chosen a VFR altitude below the deck. As tacan reception became poor, we elected to gain altitude, get on top and file IFR enroute. When we came upon a break in the clouds, we initiated a climb to get above what looked like a very thin overcast. Night depth perception was poor and as a result,

we went into the soup at 6000 feet. We had turned slightly right for the shallow climb in order to put ourselves east of the airways. As we popped out of the soup at 7000 feet we observed an aircraft passing under our left wing and clearing us by less than 100 feet. How close! Get-home-itis is a perfect way to get killed!

Anymouse

You're certainly right about that devil, get-home-itis, but there's more to this incident than that. We are at a loss as to why you did not file an IFR flight plan to begin with, as required (with certain exceptions) by OPNAVINST 3710.7E. Of course, mention is made of the possibility that light icing might be encountered (which might tend to discourage IFR flight) but your stated intention to file an IFR flight plan enroute does not jibe with any particular concern about icing.

The purpose for the OPNAV rule requiring increased use of IFR flight plans is to decrease the probability of mid-air collisions. As your experience shows, naval aviators are well-advised to conform to this rule when practicable. Besides, guessing cloud proximity at night is . . . just guessing.

Give the Big Birds a Good Sendoff

AT 1930 on a moonless night, a large naval air station saw fit to entrust the ground direction of a C-118B to one obviously inexperienced man. Throughout the entire chain of events from loading through start to taxi, only one man was available outside the aircraft. The ground director knew nothing about the equipment he was operating; nor was he familiar with starting procedures or taxi instructions.

When starting engines the lone soul attempted to position himself about 30 feet ahead of the nose of the aircraft, with the fire bottle at the ready. At this time, the copilot instructed the man as to the standard sequence for starting a four-engine aircraft and the position in which the fire bottle would be the most useful.

After start, an attempt to gain taxi directions was of no avail. The aircraft was finally taxied out of its parking spot under the watchful but uneducated eye of the taxi director.

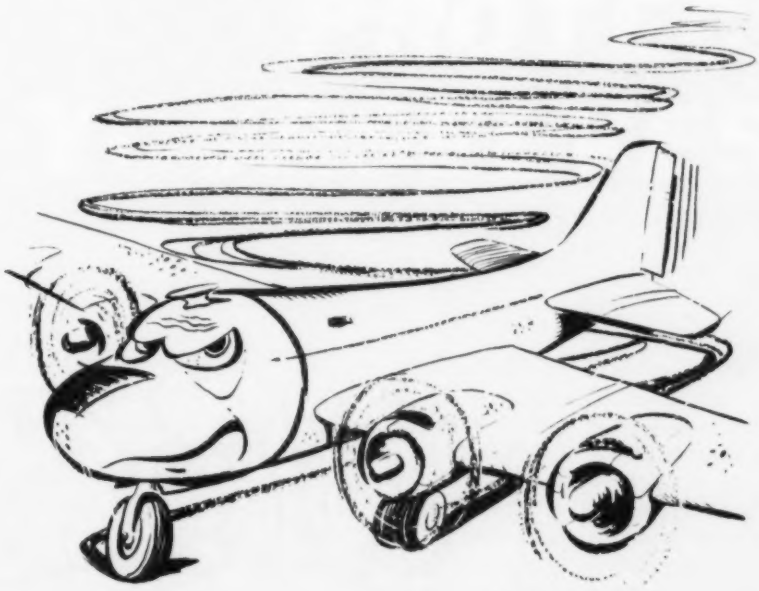
This same occurrence has happened to this pilot numerous times before but usually at a jet base. It should be well known at any NAS that one man is inadequate and unsafe for blocking out a large four-engine aircraft.

Anymouse

It's certainly possible that transient line personnel may encounter an aircraft with which they are unfamiliar; however, there is no excuse for remaining in the dark about what services must be provided. The line supervisor should ensure that sufficient personnel are assigned to dispatch aircraft and that they are familiar with the equipment which they are expected to operate. He should also ensure that both the aircraft crew and ground personnel are in agreement about the sequence of events during the starting and taxiing of the aircraft. If personnel concerned are inexperienced with the type aircraft being serviced, an informal prestart conference between aircraft crewmen and ground personnel is in order.

A question is also raised by this Anymouse report as to why the aircraft commander elected to proceed with the start and taxi after recognizing that the ground crewman was inadequately trained. This appears to be a matter which should have been corrected on the spot rather than pressing on.

How about your station? Are you rendering adequate service to transient aircraft?



A Page from the ASO's Songbook

Cool, Daddy, Cool

(to the tune of Auld Lang Syne)

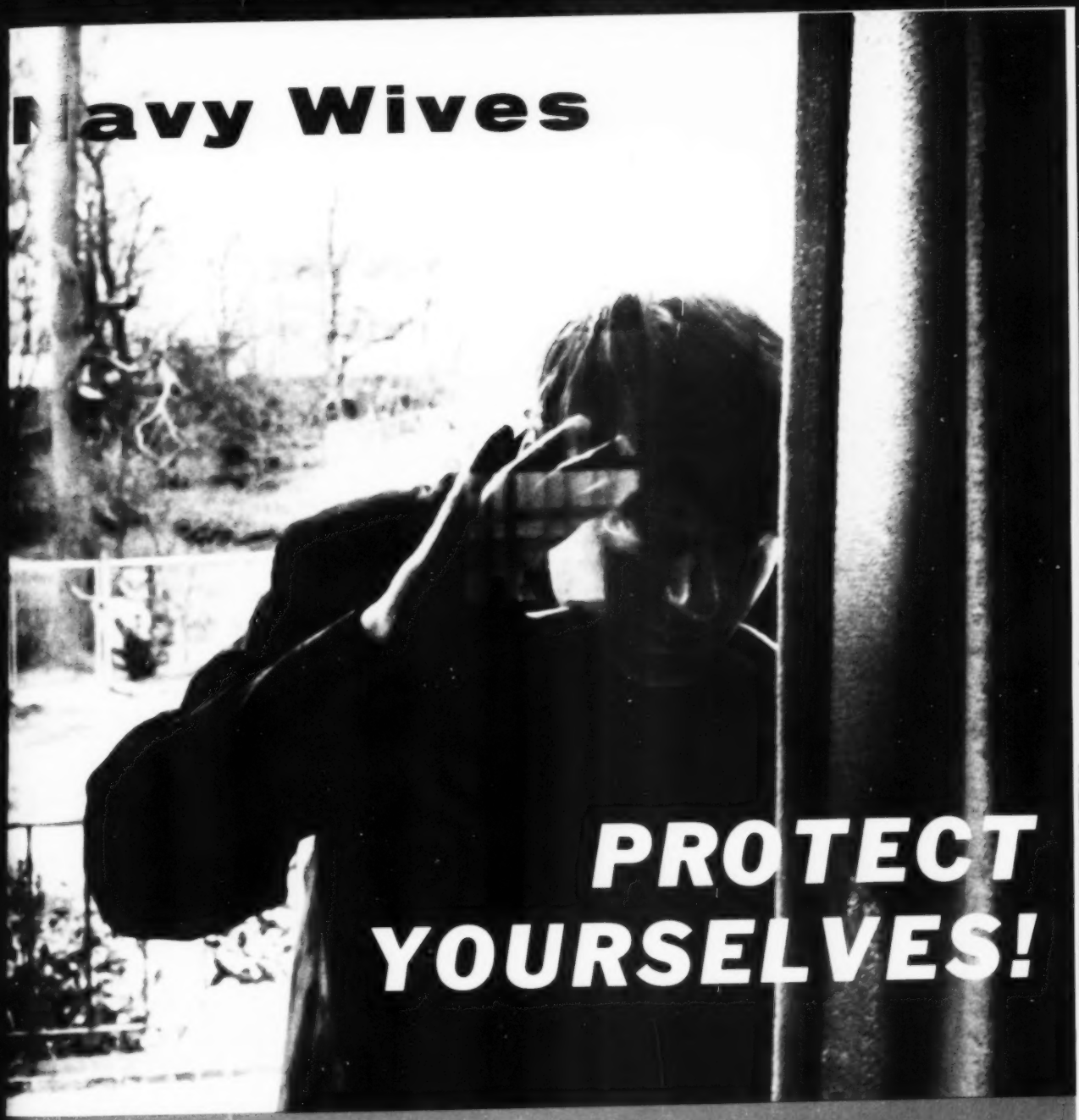
Should navigation be forgot
And the birdfarm you can't find,
Should tacan failure then occur,
It's the eightball you're behind!
Square sector searches do not work,
Nor Maydays in the blind,
Still all is not completely lost,
If you keep your cool of mind!

There is no substitute for calm,
When your engines will not run,
When radios refuse to talk
And your fuel is almost none!
When smoke is trailing from astern
It surely isn't fun,
But if you keep your cool, my friend,
You're a long, long way from done.

It helps a bunch to know your bird,
And your NATOPS understand,
It pays to preflight thoroughly
And to plan your flight is grand,
But tho' you know most everything,
What each hop will demand,
The unexpected can occur –
And discern 'twixt boy and man!

So keep your head, don't be misled,
For it's panic you must fight
Apply the things you know so well,
Do it once, *But Do It Right!*
When things go wrong, recall this song,
Don't get yourself uptight,
Just let a little cool of mind
Go along on every flight.

Navy Wives



PROTECT YOURSELVES!

THROUGHOUT the years, Navy wives have proven themselves to be some of the most durable, hard-working, efficient and dedicated women known to mankind. The loyalty they have given to their husbands, families and the Navy has been an inspiration to all who have had the good fortune to come in contact with them. Although they are officially listed as dependents, most would agree that *independents* would be more appropriate. This independence is attested to by their ability to maintain homes and rear families for long periods of time while their husbands pursue careers at sea. In addition to looking after their own needs, they are quick to respond to the needs of others, military and civilian alike. Everyone who has served or is currently serving in the Navy has the profoundest respect and admiration for these lovely ladies and is deeply concerned for their safety and well-being. Because of this we'd like to present through this article a number of

safety tips which, if followed, should help to keep Navy wives and their families free from harm and the possible loss of personal property through theft.

To begin with, let's establish a few facts. First, there is no such thing as a criminal type face. Maybe this is the impression you get when you see the FBI's wanted posters in the post office but it just isn't so. Criminals can be attractive, charming and gracious until they are ready to do their thing; then watch out! A second fact to remember is that each year a number of criminal acts are committed which were not premeditated. This means that the persons who committed the acts did so on the spur of the moment. As an example, a door-to-door salesman arrives at your home and sweet talks you into a home demonstration of his product. Suddenly during the course of the demonstration he notices your attractiveness, attire or scent and to him you become a femme fatale. We needn't go into detail as to what can happen when this occurs. Being *alert* is the *name of the game* when it comes to protecting yourself, your family and your home against the criminal element. Just as you can't tell a book by its cover, you can't tell a criminal by his appearance. Keep these facts in mind and you'll be well on your way to self-protection.

Now we'll be specific as to what you can do to help prevent the would-be criminal from taking advantage of you or yours. The safety tips which follow are strongly endorsed by law enforcement officers who feel that those women who read and heed them will be much less likely to have a problem with the criminal element. They cover such things as what action to take while at home alone, before departing on a trip, when out of the house alone and what weapons are available to you for protection.

At Home Alone

Use bolt type locks on outside doors and attach one to both the bottom and the top of each door, *not in the middle*. If you have storm or screen doors lock them also. It's a mighty fine idea to keep outside doors locked during the daytime as well as at night. Chain locks and ordinary door locks have proven ineffective in preventing the criminal element from entering a home.

Keep windows in secluded areas of the house (i.e. in the back, those protected by foliage) locked at night.

When moving into a home which was previously occupied, change the locks. You'll have a great deal more peace of mind knowing that no one else has a key to your house.

If you have a house caller, DO NOT OPEN THE DOOR unless you are positive of the person's identity. Should the caller be a motorist with a disabled vehicle or someone else in need of assistance obtain the number the person wants to call and YOU call it. If it's a delivery man, have him leave the parcel on the doorstep and *do not* open the door until *after* he has left the property. More and more women are becoming part of the criminal element, therefore take the same precautions with a woman house caller as you would with a man.

Someone at the door? Make sure you know who it is before you open the door.

Always keep the windows in the rear of the house locked at night.

Don't, under any circumstances, volunteer

In one large East Coast city during the year 1969, there were 2900 burglaries which resulted in the loss of $4,018,566.73 in merchandise and money. Of this amount police estimate that $2,000,000 was taken by narcotics users. A breakdown of the burglaries is shown below:

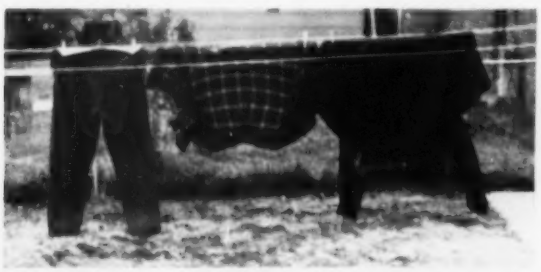
Unlawful entry – no force	912
Attempted forcible entry	394
Forcible entry	917
Armed robbery	677

Nationwide during 1969, there were 1,062,890 burglaries which resulted in a loss of $338,000,000. This amounted to an average of $318 per occurrence. It must be emphasized that these are only the reported burglaries and losses. Police estimate there were thousands of other burglaries (resulting in the loss of millions of more dollars) which were never reported. Although figures are not yet available for 1970, police officials predict a substantial increase in burglaries. Don't give the criminal element an opportunity to include you in future statistics.

information to an unknown telephone caller. Often times criminals use this as a means of finding out whether someone is alone and if so, for how long they will be alone. Always leave this type of caller with the impression that someone is with you. Chances are good that you will not be bothered further.

Should you receive an obscene phone call, HANG UP at once. If the caller persists, contact the police and the phone company. Have your number changed if these calls continue.

If you see someone leering through a window, make every attempt to act as natural as possible. Walk to the nearest room that has a phone in it and contact the police. Turn on the lights and remain inside the house until help arrives. Sometimes persons are so frightened by events such as that described above that they are unable to remember who they are, their address, or phone number when they reach the police. Therefore the police recommend that prior to placing a call you write your name, address and telephone number on a



Men's clothing on the clothes line indicate the presence of a man in the house.

A good watch dog will deter many would-be burglars.

A gun kept in the house can be extremely dangerous if there are children present.

piece of paper for easy reference.

Try to avoid going into an unlighted backyard alone at night. If you have a chore to do in the backyard, wait until daylight the next day. If you have a clothes line in the backyard, police recommend that you hang some of your husband's clothing on it to indicate the presence of a man in the house.

Never tell anyone what valuables you have in the house. In fact, it's a good policy not to keep large sums of money around.

Having a dog in the house can be instrumental in deterring a would-be intruder.

Keeping guns in the home for protection is not recommended by most law enforcement officials. Few persons, especially women are adept in the use of guns and their presence in the home can be extremely dangerous if there are children around. If you would feel safer having one, use a pistol type that does not exceed .32 caliber.

There are many inexpensive home burglar alarm systems on the market. However, before you purchase one, query the local police as to its effectiveness. This could save you time and money.

Before Departing on a Trip

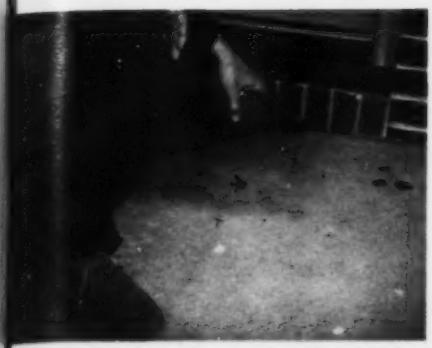
Leave a house key with one of your trusted neighbors so that she can check your home daily. This can be done on a reciprocal agreement basis, whereby you'll do the same for her when she's on a trip.

Discontinue newspaper service and have your mail kept at the post office until you return home. If you are to be away for only a few days and do not wish to stop newspaper and mail delivery then have your neighbor pick these items up each day and hold them for you.

Ask your neighbor to turn on a light in a different room every day. This gives the appearance of a home that is lived in and is a major deterrent to robbers. Installing an automatic system which turns lights on and off at the same time every day is not considered wise by police officials. Burglars are not easily fooled by such a system. Remember too, that turning the outside entrance light on each night is almost like extending an invitation to a burglar. If he has been casing the area he will more than likely know that the house is unoccupied.

Make arrangements to have someone mow your lawn regularly. Tall grass and no apparent activity around a house are pretty good clues that the house is empty.

Call the local police and tell them when you are departing and when you will return. Most police departments will check your home periodically while you're away. Make sure you tell them you have a neighbor with a key who will also be inspecting your home. Otherwise you might find a rather frosty friend when you get back.



e first two places a burglar looks for the house key.

While traveling on highways, make it a habit NOT to pick up any hitchhikers.

When Out of the Home Alone

Before leaving your home lock all doors and windows.

Do not place a house key in a mailbox or under the doormat – that's probably the first two places a burglar would look for one.

Prior to driving off in your car make sure that the doors are locked and the windows are rolled up high enough so that someone could not put a hand and arm through any of them. Each year thousands of motorists are victimized by criminals who jump into their cars while they are stopped for one reason or another.

NEVER, NEVER pick up hitchhikers. This has become such a problem that many states now make it a criminal offense for a motorist to do this.

If you see a disabled car along the highway, DO NOT STOP. Continue on to the next well-lighted area (if at night) or service station and notify the police.

If your car becomes disabled at night on the road, use the national distress signal. This consists of tying a white handkerchief to the left door handle or raising the hood. Should someone stop, lower your window just a fraction of an inch and tell him you need assistance. DON'T LET HIM INTO THE CAR.

Whenever a person tries to enter your car while you are in it, sound the horn to attract attention or until the

DO NOT STOP under any circumstances but continue on to a service station and notify the police.

If your car becomes disabled lower your window a fraction of an inch and tell him what is wrong. DO NOT LET HIM INTO THE CAR.

person leaves.

Sometimes criminals will use a squeeze play to trap an unwary motorist. This will usually be attempted in a secluded area and consists of one criminal placing his car in front of an intended victim's car while another drives up in back. If this happens to you push the car horn until help arrives.

It's always a good idea to look into both the front and back seat area of your car before getting in. Should there be an intruder inside you will be able to run for help.

Be extremely wary of the stranger in a restaurant, theater or cocktail lounge. Don't give your name to anyone in these surroundings. Keep your life history to yourself. Along with this, never accept a ride home from a stranger.

Although it is not recommended, it's sometimes inevitable that you will have to walk alone at night in an unlighted, secluded area. Be prepared; carry a flashlight and walk away from shubbery and doorways. If there is a sidewalk, use that portion closest to the street.

When shopping and paying for your merchandise, never expose large sums of money. You never know when a criminal is lurking nearby watching for this to happen. If you have just cashed your allotment check, remove that amount of money you think you will need to shop and hide the rest in a compartment of your handbag. Better still, put the remainder in the bank.

A most important thing to remember is this; always be on guard when you are out alone. By doing this you automatically are anticipating that something could occur and, as a result, if it should you're more apt to

Hair spray makes an effective weapon and if sprayed into th eyes can put a person out of action for some time.

If attacked, use the weapons which you normally have with you. A spiked heel can be a lethal weapon if held by the toe.

Beware of the stranger in a restaurant, theater, or cocktail lounge. DO NOT give your name to anyone in these surroundings. Your life history is your own business.

take some form of action. For instance, most women carry items in their handbag which could be used against an assailant. Pens, pencils, tweezers, combs, nail files, hat pins and the like can be quite effective in repelling an attack if carried in the hand while walking in a secluded area. Hair spray if sprayed into the eyes can put a person out of action for some time. A shoe with a spike heel can be a lethal weapon when held by the toe. In other words, when an attack by an assailant is imminent, be ready to strike out with whatever weapon you happen to have at your disposal.

There are many commercial self-protection items which can usually be purchased in drug and hardware stores as well as stores which feature safety items. A Mace spray dispenser in a stream or foam variety is easily carried in a handbag and serves as a good repellent. The stream type is recommended because it does not have a tendency to blow back into the face of the user as does the foam type. A battery-operated personal alarm system can also be carried in the handbag or on the person. This emits a piercing sound which reaches the inner ear before the sound can actually be heard. One of the best items to carry and also have at home is a police whistle. These are far more effective than a scream and will generally gather a group if for no other reason than curiosity. An obscene phone caller would have a tin ear for some time after he received a blast from one.

We hope that what we have presented above has not unduly alarmed you but we do hope that it will motivate you into taking protective action against the criminal element if you haven't already done so. Your environment will have a lot to do with how much protection you require. However, no area is free from penetration by those seeking to rob or prey on the innocent. Good common sense, remaining calm and staying alert can do more to protect you than anything else.

Your safety and that of your children and husband is paramount in importance to the Navy. When your husband goes to sea on an extended deployment with the knowledge that you are fully capable of protecting yourself, his mind will be at ease and he therefore is less likely to become involved in a mishap. He also will perform his tasks in a more professional manner when he has nothing to worry about at home. Everyone gains from this; you, your husband, your family and the Navy. We love you Navy wives, so please be vigilant and allow us the pleasure of your company for years to come.

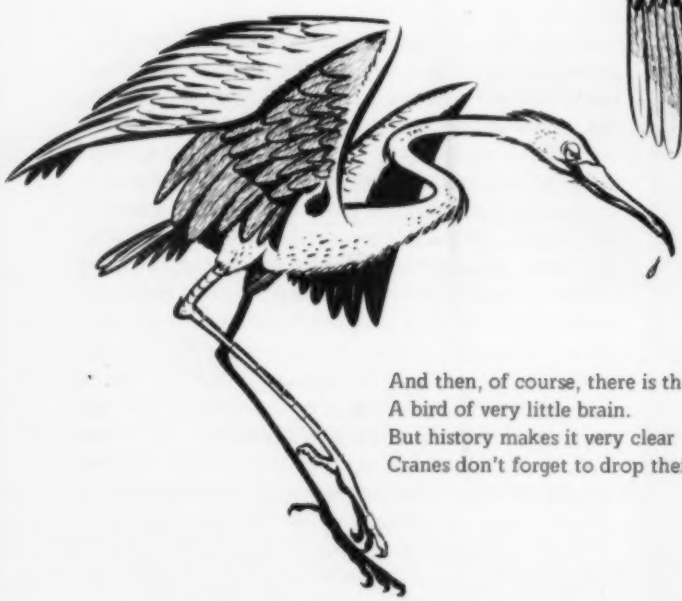
Our thanks to Master Patrolman David W. Emory of the Norfolk, Virginia police department for his assistance in the preparation of this article.

All Navy and Marine Corps Commands are urged to make the contents of this article available to the wives of their personnel. — Ed.

The Real Professiona
Who You Calling a Birdr

The birds, like flyers everywhere,
Earn their living in the air.
Safety-wise, from recent trends,
We should emulate our feathered friends.

Consider first our friend the hawk
Lots of action, not much talk,
But e'en the hawk, for all his might,
Dares not neglect to pre-his-flight.



And then, of course, there is the crane,
A bird of very little brain.
But history makes it very clear –
Cranes don't forget to drop their gear.

The
In in
But
Fly

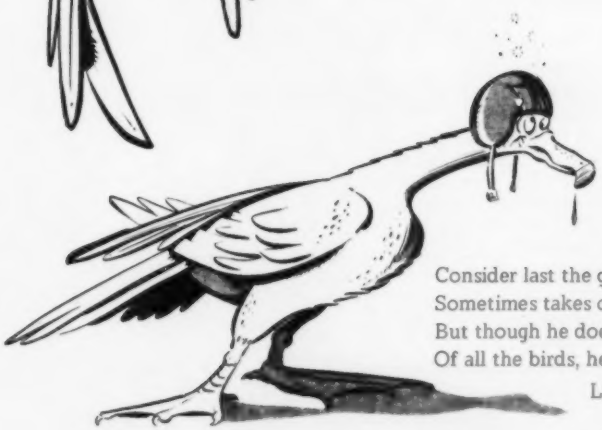
The swan is very dignifi
He's known for overweeni pric
It isn't likely that the sw
Forgets he has his speed like o

...signals, or
...Birdbrain, Buster?

After dark there flies the bat,
His radar tells him where it's at.
And though we hate for bats to bite us,
They seldom crash from get-home-itis.

The hen, who gives us eggs and such,
In intellect is not too much.
But hens would never, we suggest,
Fly with insufficient rest.

The eagle is a bird of prey,
Insists on having things his way.
See the eagle's noble look.
He knows he won't forget the hook.



Consider last the gooney bird.
Sometimes takes off and lands absurd.
But though he does the best he can,
Of all the birds, he's most like man.

LT Norman E. Lane, MSC, USN

...gnifi...
...erwe...g pride.
...he s...
...peed ...ke on.

SAR

During HC-5's rescue aircrewman training course, students learn how to operate all current aviator's equipment with special emphasis on that of the jet pilot. Here a chief aircrew survival equipmentman teaches students how to release koch parachute fittings.

"THE performance of the plane guard helo was excellent. I owe my life to the aircrewman who entered the water and freed me from my parachute shroudline entanglement."

The pilot who made this statement was rescued by helo following his ejection at night from an A-4 after a cause-undetermined catapult accident. He entered the water headfirst as his parachute deployed. Although twisted and enveloped by his chute and shroudlines as he sank, he managed to pull the right toggle of his LPA-1. "Bubbles and commotion" alerted him to the possibility that the ship was coming toward him. His head hit a hard object and he believes he slid rapidly along the ship's hull. Suddenly he surfaced forcibly in spite of the fact that his parachute was pulling him under. He reeled in the chute and wadded it in his arms. The next thing he remembers is the plane guard helo and its spotlight.

To make a long story short, a helo rescue crewman

A chief aircrew survival equipmentman demonstrates to student rescue aircrewmen how to secure the helicopter rescue hook to the V-ring on a pilot's integrated torso harness. For retrieval of a survivor who is not equipped with an integrated torso harness a rescue sling or horse collar is used.

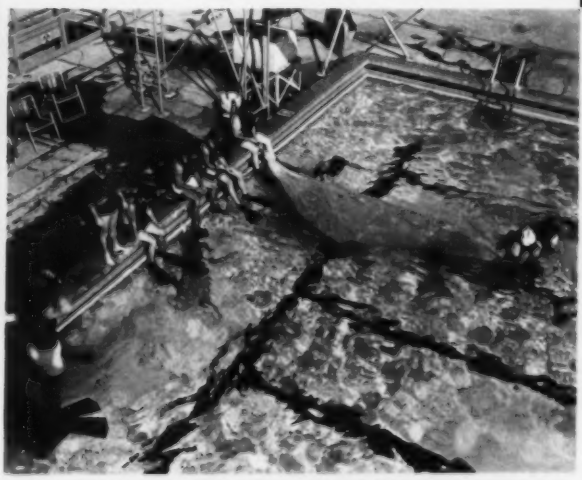
CREWMAN TRAINING

entered the water and, making repeated dives, freed the pilot's legs from the shroudlines with his pneumatic webbing cutter. At one point during the rescue, helo rotor wash reinflated the pilot's chute and he was dragged some 20 feet away from the crewman. The pilot hit the parachute canopy and collapsed it, the crewman swam to him and the rescue proceeded. Finally, completely freed from the entangling chute, the exhausted pilot was hoisted aboard the helo on a three-pronged seat. The seat was then lowered to the water again to retrieve the crewman.

Nine Months of Rescue

During the first nine months of calendar year 1970, there were 59 attempted helicopter rescues of survivors who ejected overwater. Twenty-three of these rescues went flawlessly. There were problems in the remaining 36. In approximately two-thirds of these, helicopter crewmen went into the water. All but four survivors were rescued successfully and in each instance in which the survivor was lost, his physical incapacitation influenced the outcome.

Fifty-five times during this period pilots and crewmen who ejected overwater were rescued by SAR helos. You can't knock success and, all things considered, the overwater helo rescue record is good. In many of these episodes, however, it was touch-and-go for a time. Statistics give no inkling of the drama of the events they



A rescue aircrewman must be in top physical condition. Each day begins at an early hour with vigorous physical training. Here an aircrew survival equipmentman chief leads students in long distance running.

More vigorous PT — an instructor leads students in calisthenics beside the swimming pool.

Pool training is conducted using an actual parachute and equipment associated with a downed pilot. Students learn proper water entry techniques and methods of untangling downed aviators and aircrew from parachute and shroudlines.

This underwater photo shows students learning how to remove a parachute from over their heads. Such training builds the student's confidence and ability to cope with this situation in an open-ocean environment.

represent. *As long as a single survivor is almost lost in a rescue attempt, there is room for improvement.*

Safety Center Recommendations

The Naval Safety Center has recommended to CNO that single management be designated for a standardized SAR crewman training program based on the HC-5 CNO-approved syllabus.

The key word in improving overwater helicopter rescue is *standardization.*

• *Standardization of training of rescue crewman* – This is *imperative* to success in helo rescue. Events take place rapidly in survivor rescue emergencies and there is rarely a chance to correct an error of procedure or technique. Darkness, bad weather and heavy sea conditions and survivor incapacitation or panic can turn a marginal rescue into an unsuccessful rescue in seconds. On the other hand, a well-trained rescue crewman often means the difference between failure and success.

Naval Safety Center helicopter and survival equipment and procedures analysts are of the opinion that the helicopter rescue crewman should be prepared to go into the water routinely at the command of the helo aircraft commander, whether the survivor seems to need assistance or not. The SAR crewman would not be ordered to enter the water when his ability to survive due to environmental conditions would be questionable.

Pool training includes instruction in drownproofing, basic survival strokes and lifesaving techniques and carries. A chief aircrew survival equipmentman, who is also a Red Cross water safety instructor and a Navy diver, supervises students doing lifesaving rescue carries.

A hospitalman instructor demonstrates proper application of a bandage to a simulated large flesh wound as a part of the 40 hours of first aid instruction included in the training course.

• *Standardization of equipment used by SAR helo crewmen* – Naval Safety Center analysts concerned with helo rescue problems have recommended that issuance of the proposed NAVAIR 13-1-6.5, *Helicopter Rescue Equipment Manual* be expedited and that this manual include recommended operational use of equipment. Generally speaking, the rescue crewman can work more rapidly, efficiently and safely if he is wearing a wet suit (except in warm waters), face mask and fins and UDT lifevest and if he has a shroud-cutting device.

Ability to employ proper first aid procedures plays an important part in the role of a rescue aircrewman. Students receive approximately 40 hours of instruction in first aid techniques from a hospital corpsman.

In the final phase of the course, one of the instructors assumes the role of a downed aviator. While a safety diver stands by in case of emergency, a chief survival equipmentman supervises entry of the "pilot" into the water for later pickup by one of the student rescue aircrewmen.

• *Standardization of procedures used by SAR helo pilots* – Considering the Navy tradition that any helicopter is a potential SAR helicopter (except the H-53), standardized helo pilot procedures are especially important. A recommendation has been made that SAR pilot training, including those techniques employed by HC squadrons, be instituted for those commands having a secondary mission of SAR.

Continued

The instructor, simulating the role of a "downed aviator" entangled in his parachute, awaits the arrival of the rescue aircraft.

As soon as the "downed aviator" sights the rescue aircraft, he ignites a Mk-13 Mod 0 distress signal. This gives the pilot of the rescue aircraft wind direction as well as the immediate location of the "downed pilot's" position.

• *Standardization of pilot personal survival equipment* – Unless the survivor in the water is wearing standard equipment in the standard manner required by NATOPS, he can present problems even to a trained helicopter rescue crewman. Valuable time can be lost while the rescue crewman must search and improvise.

SAR Crewman Training

A syllabus has been devised by HC-5 and approved by CNO for training rescue crewmen.[1] HC-5's training begins with a highly motivated enlisted man from the Group IX rating volunteering for flying. Following successful completion of a crewmember's flight physical, the volunteer must demonstrate his ability as a first class swimmer as defined in BUPERS Manual, Art. 6610120.

The HC-5 rescue crewman syllabus takes 14 weeks to complete. The syllabus consists of three weeks of swimming and first aid, two weeks of hand-to-hand combat, one week of SERE training, one week of night vision indoctrination and combat pistol instruction, three weeks of plane captain and rescue aircrewman duties and four weeks of flight training.

[1] APPROACH is indebted to LT George C. Gring, USNR, aircrew training division officer of HC-5, and PRC Ray E. Smith, USN, aircrew training chief and director of swim instruction, for material on the HC-5 CNO-approved rescue syllabus. Photographs are by PHCS V. O. McColley of the PACFLT Combat Camera Group.

The most important phase of training is the three weeks of swimming instruction. Previously, rescue aircrewmen were only required to pass the second class swimmer's test and the annual maintenance swim test. As a result, inadequately trained and inexperienced crewmen sometimes were required to enter the water to assist injured or helplessly entangled survivors. The first two weeks of swimming instruction consist of strenuous physical training, swimming techniques and water survival procedures. Classroom lectures are conducted in conjunction with pool work and include thorough first aid procedures and familiarization with all survival equipment used by operational squadrons. The trainees learn how to remove entangled parachutes from survivors, water entry from 20-foot heights in full equipment (swim fins, face mask, swimmer's harness and UDT lifevest), lifesaving releases and carries and, finally, drownproofing. *(Drownproofing is a specific series of rhythmic motions enabling a survivor to stay afloat with an absolute minimum of energy expenditure. – Ed.)*

The rescue helicopter commences its approach to the "downed pilot" while a student rescue aircrewman prepares to enter the water expeditiously by jumping next to the "survivor."

As the rescue aircraft is maneuvered at approximately 10 feet altitude and 10 knots airspeed into a position near the "downed pilot," an instructor crew chief aboard the helo checks the water surface for floating debris and the "downed pilot's" position. Keeping in constant communication with the helo pilot, he directs the aircraft into proper position and signals the student to jump.

After receiving the signal from the instructor, the student, using techniques learned during pool training, exits the aircraft. After he is in the water, he will give a thumbs up to indicate to the instructor crew chief that he is uninjured and able to perform the "rescue."

As soon as the student is safely in the water, the helo moves to a position away from the "downed pilot." This eliminates rotor wash and noise which can greatly hamper a rescue attempt. Again using techniques learned in the pool phase of the course, the student, avoiding parachute and shroudlines, approaches the "downed pilot." On reaching the "pilot," he immediately checks his condition, then commences removal of the parachute shroudlines and other entanglements, meanwhile towing the "pilot" away from his parachute. When the student is certain there are no more entanglements, he releases the parachute quick release fittings and continues towing the "pilot" away from the parachute. He then administers any necessary first aid and/or signals for the return of the rescue helo.

Continued

The rescue helo returns to the student and "pilot" with the helicopter rescue hook and rescue sling or horse collar attached. The student rescue aircrewman attaches the "pilot" by means of his torso V-ring to the helicopter rescue hook, then attaches himself to the hook using his harness. As soon as the student has attached the "pilot" and himself properly, he signals the instructor crewman in the helo to hoist away and the two men are raised simultaneously.

During the third week of the swimming training, trainees practice their skills in the open sea. Long swims both at night and in the day build the trainee's confidence in deep water. Then each man makes a number of jumps from a helicopter which is moving at 10 knots at 10 feet of altitude – a procedure necessary to ensure expeditious water entry. Finally, the trainee makes a simulated rescue. He enters the water from the helo, swims to a parachute-entangled "survivor," administers any "necessary" first aid, including mouth-to-mouth resuscitation or cardiac massage, frees the "survivor" from his parachute and any other encumbering survival equipment and, after signaling for the return of the helicopter, attaches the "survivor" and himself to the rescue hook for helo hoist.

As the student rescue aircrewman and the "pilot" are being hoisted toward the rescue helo, the student properly positions himself and the "survivor" for entering the hatch. After the "survivor" and the student are safely aboard, the student administers first aid if necessary.

On completion of this instruction, all HC-5 trainees are able to demonstrate the highest degree of proficiency in rescue techniques. Seventy-five percent of the HC-5 trainees qualify for Red Cross senior lifesaving certificates. And HC-5 makes sure that a qualified rescue aircrewman stays qualified. As set forth in HELSUPPRON 5 INST 1510.2, the syllabus requires every aircrewman to qualify annually in:

- NATOPS open and closed book exam.
- NATOPS flight check.
- Swimming maintenance test and water survival instruction (including a one-mile swim in one hour).
- Dilbert Dunker.
- Plane captain in type aircraft in which he is NATOPS-qualified.

The rescue aircrewman also must have performed six actual or simulated survival rescue operations within the preceding 12 months, must pass an annual flight physical and every third year must requalify in night vision.

Any HC-5 rescue aircrewman's flight orders are revoked if he allows an annual requalification as specified in the instruction to become overdue and has not been issued a waiver for that discrepancy by the commanding officer. Disposition of the crewmember is then referred to the flight order board. Any rescue aircrewman who is in the process of completing a reevaluation at the time of qualification expiration is deemed unqualified for crewman's duties and remains grounded until he requalifies. If a man fails the reevaluation or exceeds the maximum alloted 60-day requalification period, his flight orders are revoked and he is referred to the flight order board for disposition.

Regardless of the date of previous qualifications, any aircrewman reporting aboard HC-5 is required to requalify in NATOPS open and closed book exams, NATOPS check ride and plane captain duties in each aircraft in which he previously qualified. He must also requalify in aircrew swims. If he is a graduate of either the HC-5 three-week swim school or the Paramedic Rescue Team No. 1 swim school, he need only requalify in first class swims. Aircrewmen reporting to HC-5 for duty involving flying who do not hold current qualifications in accordance with the HC-5 instruction or do not have proof of their last qualification date are required to complete their deficient qualification before being issued a set of flight orders.

Ultimately, HC-5 believes it will be this type of strenuous training and adherence to these procedures which will eliminate haphazard and unsuccessful rescue attempts.

A competent, well-trained SAR helo crewman can literally be a lifesaver in the water. The personal satisfaction of a SAR crew which does its work confidently, efficiently and successfully under the most trying conditions and the esteem such a crew commands throughout the fleet are immeasurable.

Consider, finally, the grateful testimonial of another rescued A-4 pilot who closed his accident report narrative by saying, "It may be positively stated that had the helo crew not reacted in the rapid, professional manner in which they did, due to increasing exhaustion and a rapidly settling parachute my rescue would have been marginal."

To save a life is no small thing. ◄

WAIT

. . . For Night Sight!

ACCORDING to the British Association of Optical Practitioners, your vision will improve 20,000 to 30,000 times if you wait a few minutes before driving off into the dark.

The Association claims it takes about 15 minutes for a driver's eyes to become completely accustomed to the dark – but few motorists wait even 15 seconds. They come out of a lighted building, jump into a car, and drive off – partially blind. According to the British group, for minimum safety, 17-year-old drivers should wait 2 or 3 minutes and 60-year-old drivers at least 5 minutes for dark adaptation, but it still takes 15 minutes to gain your best dark vision.

Don't Blow Your Mind!

TO understand how drugs affect the mind, think of the mind as a powerful stereo hi-fi with perfectly matched components. It has monitors and modulators which detect and adjust impulse strength. It has fine tuning mechanisms which match inputs and outputs of the various components. The mind takes the inputs from the body's receivers and produces outputs for its memory, judgment, pleasure, pain, and so on. Just as components of the electronic system must be matched, the components of the mind must be coordinated for best performance.

What is not generally understood is that a drug does not affect all the functions of the mind equally. For example, alcohol is, in general, a depressant but it depresses a function that we might call inhibition or judgment more than other functions. The result is that people become more talkative and freer about what they say and do. Sometimes this isn't bad, at a social gathering, for example, but it's an obvious hazard when you are involved in a complex task. Since reasoning is one of the functions most severely affected, alcohol is not at all helpful when you are trying to explain to the police officer why your car was on the wrong side of the road.

There are other drugs that have much more subtle effects than just stimulating or tranquilizing the nervous system as a whole. They act in much more specific ways. On this level, the functions of the mind are very poorly understood but from the effects of certain drugs we can see that there must be functions we could call integration or sense of truth. Sense of truth is what tells us when we have arrived at the solution to a problem or when we really understand a point someone is explaining to us. If a drug is given which overstimulates the sense of truth, the mind is fooled into believing that all its thoughts are very deep, beautiful, important and true. But if the person "under the influence" tries to explain his earthshaking thoughts, they turn out to be nothing but disorganized ramblings. Conversely, if the function of integration is depressed by another drug, each of the separate functions of the mind may run wild. Feedback and coordination between them break down. Something like this seems to happen with LSD and the person loses all capacity for organized thought.

No drug has ever been found which stimulates or improves the functioning of all the components of the mind in any coordinated way. In fact, such a thing may not even be possible.

According to the most accurate information today, the maximum performance of the mind, the best creativity, the most logical thought and the most reliable judgment require a mind in a healthy, well-rested body, unaffected by any attempts at manipulation by drugs.

You wouldn't let an amateur try to adjust your stereo – don't fiddle with your mind.

LT R. L. Carter, MC, USNR

Proper Use

WHEN fuel ignited in a fuel pit, an F-4 pilot escaped from his aircraft without injury. Although the aircraft seat and seat cushions were severely burned, he sustained no burns whatsoever. *He had his nomex flight suit sleeves rolled down and his gloves on.*

"This once again amply proves the protection afforded by the nomex flight suit and gloves," the investigating flight surgeon states. "We should continue to stress their proper use."

Flight Deck Life Preserver

AN IMMEDIATE switch to quarterly inspection rather than annual inspection of the Mk-1 flight deck life preserver has been directed by the Naval Ship Systems Command. The preserver, popularly known as a vest, is worn by carrier flight deck personnel for identification and survival purposes.

A high rate of failure was reported when the life preservers were subjected to the annual functional test called for in the PMS (Planned Maintenance System). The PMS will be updated to reflect the new quarterly inspection requirement. NAVSHIPS NOTICE 9330 of 23 February 1971 refers.

Down in the Desert

APPARENTLY believing that the aircraft overhead had not seen or received signals from the helo passengers and crew after autorotation into the desert, the

notes from your flight surgeon

pilot sent two crewmen for help 45 minutes after the accident. Investigators later characterized his decision as "premature." Considering that it was midday, although in the cooler winter months, and that the distance involved was 14 to 18 miles and the survivors had no water, the decision constituted a breech of basic desert survival. (In all fairness to the pilot, it must be pointed out that the main road was thought to be six to seven miles away.)

After about five miles, the two men came upon a water-filled cattle trough and stopped for a drink. One of them found an old beer can, washed it out and filled it with water to carry along and they continued their hike. After another three or four miles they were picked up by the driver of a jeep and taken to a telephone on the main highway another six to eight miles away.

By this time help was already on the way to their companions. Twenty minutes after the two men had departed, the pilot raised a flight of F-8s on his PRC-63 and subsequently, a helo arrived and picked up the survivors.

Investigators thought that the pilot should have given normal SAR channels more time to react and reach the scene. They also thought him remiss in not ensuring that at least two canteens of water were aboard the helicopter for the flight. They recommended that the command reiterate the importance of and the pilot's responsibility for ensuring that drinking water is aboard aircraft on all flights. The wing and squadron policy is that all cross-country aircraft should carry water aboard for each individual. (Canned water can be carried in the seat pans of fixed wing, ejection seat-equipped aircraft.)

"The wing's and squadron's policy requiring water to be carried aboard all cross-country flights is an excellent policy, especially since the majority of the wing's flights are conducted over desert and semi-desert regions," the flight surgeon states. "Unfortunately there was no water aboard this cross-country flight. Obviously, the outcome might have been tragic."

The investigating flight surgeon also recommended that due to the rapid turnover of transition pilots in this particular squadron, desert survival films and lectures should be presented on a monthly basis.

No Picnic!

IS your squadron or ship planning a picnic anytime soon? If so, read on. Here's an item on picnic and cookout safety concerning a hazard which has probably been with us since the first man reached up and pulled the first banana off a tree.

It just takes one banana peel or one piece of melon rind to put a good man out of commission for months. Last summer a group of Navymen were having a late afternoon picnic at the end of a two-week training tour. A chief petty officer stepped on a watermelon rind left on the ground by a previous group, slipped, fell backwards and broke his right ankle.

Picnic garbage should be placed in appropriate containers, not left for somebody else. Persons in charge of picnic grounds and campgrounds should make sure – by means of signs and verbal reminders – that everybody knows this. It takes less time in the long run to pick up your picnic trash and garbage than it does to try to get the work out when one of your men is laid up because of an unnecessary accident.

Dyeing Liferafts

IF you follow directions in the *Inflatables Manual* it doesn't hurt an LR-1 liferaft to dye it blue.

Three rafts which reportedly became mottled and stiff after being dyed have been tested by NAVAIRDEVCEN (Naval Air Development Center). NAVAIRDEVCEN states that the in-service dyeing with the material specified did *not* cause premature failure of the rafts or compromise airtight integrity and functional capability. Chemical analysis of the dye specified failed to reveal any substance detrimental to the coated cloth which the rafts are made of. Failure of the three rafts, NAVAIRDEVCEN said, was due to normal wear. ◄

You can't tell safety shoes

from regular shoes

***until* they save your toes!**

Safety Review

UNDER PRESSURE

AS flight leader of a flight of two TA-4Bs on 25 November, 1970 LT Stephen B. Smith, Jr., was put to a severe test. We are happy to report that, thanks to LT Smith's outstanding skill and endurance, he was able to pass the test with flying colors.

The two aircraft, assigned to NAF Detroit, were on a VFR flight from NAS Norfolk to NAS Jacksonville. They were established at cruising altitude and were 20 minutes into the flight at the time of the incident. The geographical position was 50 to 75 miles south of MCAS Cherry Point.

Before recounting the incident, it's appropriate to note that LT Smith's TA-4B had AFC 359 (seat stabilization-DART-ejection system) incorporated, and the ejection seat was equipped with an NB-11 parachute.

LT Smith's first indication of trouble was a "click" and the report of a Mk-86 cartridge firing. Immediately afterwards, the seat separation bladders inflated and forced him up and away from his seat. He had his feet back against the seat prior to the time the bladders inflated and subsequently was unable to return his feet to the rudder pedals. (LT Smith stated later that his legs would have undoubtedly been broken if they had been positioned forward.) Considerable force was exerted against him by the bladders; his head was jammed into the canopy-mounted clock and standby compass with sufficient force to crack the visor shield on his helmet. His shoulders were pressed against the instrument panel glare shield; his knees were against the top of the instrument panel.

LT Smith was able to control the aircraft satisfactorily although he could barely reach the control stick and throttle. From the position his upper body and head were in, he could force his head upward to see outside of the aircraft. With his head up, he could not talk into his face mask microphone. By bending his head downward, he could talk into the microphone and by moving his knees, see one instrument at a time. LT Smith's immediate concern was whether the ejection seat might be activated and possibly eject him while he was jammed into the front of the cockpit.

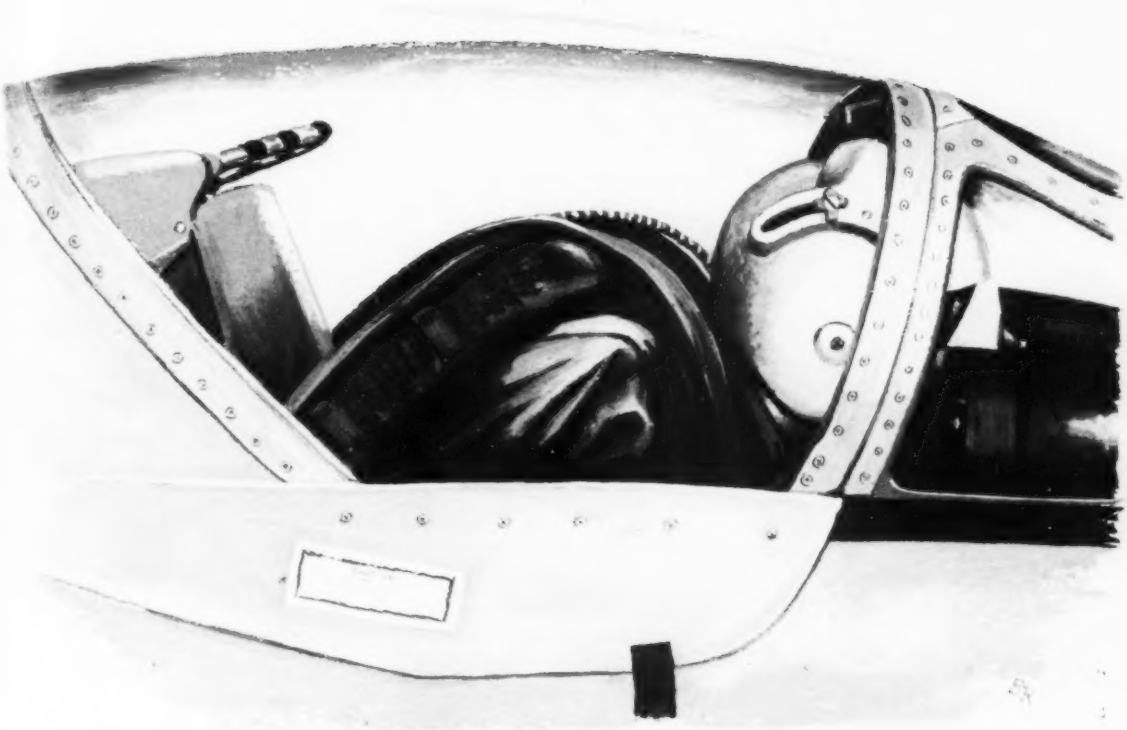
LT Smith removed his knife from its location on his chest and attempted to puncture the back bladder. By pushing up and cracking the right hand corner of the glare shield away from the attachment points, he was able to force his right arm over his shoulder but he could get his knife point only as far as the top of the parachute. He tried reaching down and back along his right side but, again, could not reach the bladder. He was unable to move his left arm either over his shoulder or along his left side. He attempted to lower the ejection control safety handle but it was also out of reach.

During the time LT Smith was attempting to remedy the situation, he advised his wingman of his problem. The wingman contacted MCAS Cherry Point Approach Control with a request for technical advice on the ejection seat. Cherry Point had an LSO and an ejection seat technician on the radio within minutes. Their recommendation was to attempt to lower the ejection control safety handle (which the pilot was unable to reach) and to attempt a landing at Cherry Point. It was recommended that the pilot not open the canopy after landing.

LT Smith realized that he would have to make an arrested landing as he could not control the rudder pedals or brakes. With the knowledge that an LSO was standing by at Cherry Point, the flight decided to land there. Enroute to the field, LT Smith paused at 10,000 feet and made a slow flight check to determine if he had adequate control of the aircraft. With slow and deliberate actions, he transitioned the aircraft to the landing configuration and concluded he had sufficient control to make an arrested landing.

With the airfield in sight, the flight descended for an identification pass over the field. The LSO briefed the pilot on the location and types of arresting gear on the runway and pointed out significant features of the approach zone.

At lower altitudes, LT Smith found that he had slightly more maneuverability in the cockpit as the



increased ambient pressure served to deflate the bladders slightly. He stated later that he may have been able to reach and puncture the back bladder but at the time he did not consider it. He was finally able to get a finger on the ejection control safety handle and pull it down.

LT Smith then commenced his approach and with little more than minor comments from the LSO, made a successful arrested landing. During the arrestment, the PK-2 seat pan slid forward striking the pilot's legs. After the landing, ground personnel opened the canopy just wide enough to reach inside and puncture the back bladder. The ejection seat safety pins were installed and the pilot left the aircraft.

Inspection of the cockpit revealed that the parachute ripcord pins had been pulled, allowing the parachute pack to open and spread. The forced movement of the pilot in relation to the seat had pulled the arming cable activating the parachute automatic release. The parachute being opened had contributed to LT Smith's inability to reach the back bladder.

The harness release actuator sear was found on the cockpit deck alongside the seat.

The only damage was to the ejection seat. The firing mechanism control cable had broken at the base of the threads on the terminal end fitting, however, the safety wire securing the end fitting and the turn barrel was in place. The harness release cable return spring was stretched beyond reusable limits which is a normal result of the actuation of the automatic harness release sequence.

The investigators reached the following conclusions as to the cause of this incident:

- The harness release actuator sear somehow became separated from the firing pin, initiating the ejection seat separation sequence. The cause of the sear release is undetermined.
- The singular action of ejection seat separation/bladder inflation rendered the pilot restraint harness, the ejection seat and the parachute inoperable.

LT Smith displayed commendable skill and professional judgment in the face of a very adverse situation. He was ably supported by the teamwork of his wingman, the control facilities, the LSO and technical personnel. A well done to all. ◄

"When the need arose for their services,
the NAS Barber's Point crash crew responded quickly, alertly, and professionally."

A Million Dollar Save

AS A RULE aircraft crash crews spend many, many hours of sitting, waiting and standing by, ready to respond to some type of aircraft emergency. From an economical point of view, the fewer times that a crash crew is required to perform, the better off the Navy will be in the preservation of lives, equipment, resources and dollars saved. But when an emergency does occur the need for their services is both immediate and demanding. Some unknown philosopher once uttered words to the effect that " . . . if you have one and don't need it there is no problem, but if you need one and don't have it, you may never need one again!" Of course these words could apply to a variety of situations, but in the incident about to be related they seem to be particularly appropriate to having a crash crew readily available during a defueling operation.

A defueling truck was parked in front of a C-118B's port wing and was defueling the No. 2 main fuel tank. The crash/fire truck was standing by upwind in front of the aircraft's nose about 80 feet away.

During defueling, the discharge hose on top of the defueling truck came out of the opening and sprayed fuel on and around the defueler. The man stationed as the fire bottle watch near the aircraft's hose stated ". . . apparently one of the hoses was under pressure and slipped, throwing fuel all around the defueling truck. Some of the fuel hit the compressor (truck's exposed hot APU exhaust pipe) and set off the fire." Immediately the forward part of the defueler was enveloped in flames as was the ground between the truck and the No. 1 engine.

The crash crew moved in quickly and extinguished the fire with foam, thereby preventing an explosion and possible loss of the C-118 as well as the lives of the three defueling men.

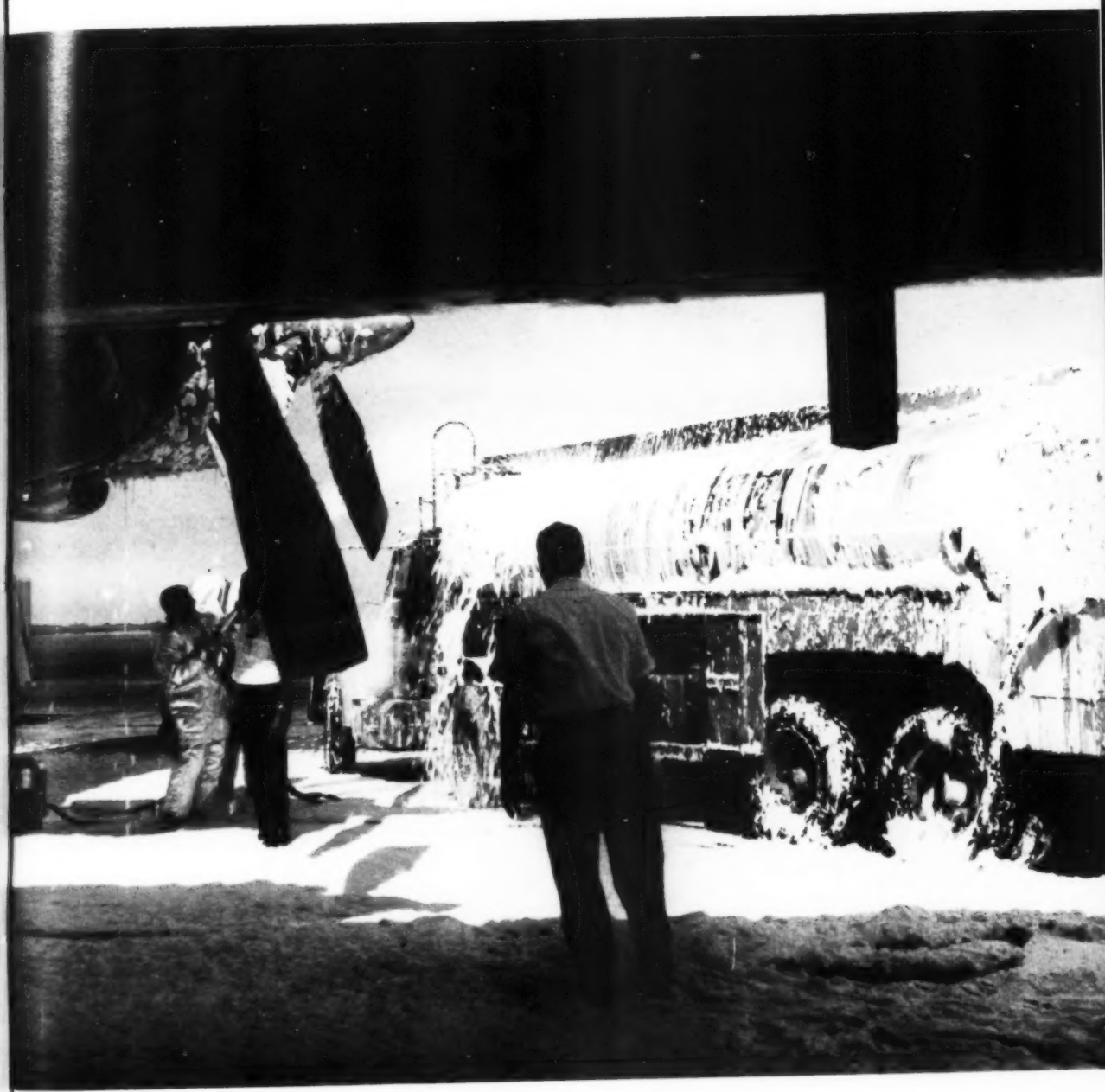
As the result of the crash crew's outstanding performance the aircraft sustained only limited damage instead of a complete loss. It amounted to a "million dollar save" since the strike damage figure for a C-118B is carried on the books at $1,286,000.

It was determined that the airman manning the defueling truck did not lash down the discharge hose to a stanchion near the truck's top tank opening. All drivers had been instructed to lash down the refueler discharge hose, but in this case, although a piece of manila line was available, it was not used.

This is an excellent example of accident prevention "before the fact." (The accident, while not absolutely prevented, was certainly minimized.) Although defueling is a routine operation, good accident prevention practice dictates that a crash crew stand by in case the unexpected occurs – as in this case it did.

The commanding officer of the squadron involved in the incident had this to say in his endorsement: " . . . This command wishes to express its sincere appreciation to the station's crash/fire crew whose prompt, professional action in immediately bringing the fire under control undoubtedly saved the C-118B aircraft and, possibly, the lives of three men in the defueling crew." ◄

Well Done!



A Corsair Pilot Reminisces

By CDR Guy P. Bordelon

Periodically APPROACH turns back the pages of naval aviation history to publish an article or story from another era or decade. This article falls within that area.

CARRIER aviation has played a prominent role in both the Korean and Viet Nam conflicts. During the Korean fighting naval aviation did not have the benefit of NATOPS to enhance aviation safety since the emphasis on such Navy-wide standardization had not been evolved at that time. One of the major areas people have asked me about is how we operated without something like NATOPS. We did have NATOPS of a sort; it was called squadron SOP (Standard Operating Procedures), which was essentially what NATOPS is today.

In VC-3 one of the things we learned was that there were certain areas in which we could have used a crossover of information from other units flying the *Corsair,* although we were the largest squadron using them. We had to develop, on our own, most of the techniques that were used. Although we learned a great deal, a lot of mishaps occurred because we didn't have the type of information that is available today through NATOPS. One factor which we did have was a great deal of air experience and I think that weighed heavily in our favor. Despite what is done in attempting to standardize

We are indebted to CDR Guy P. Bordelon, Jr., USN(Ret) for this article about the Corsair and his night fighter experiences in Korea. During the Korean campaign CDR Bordelon (then LT) became the only "triple threat" ace of the war by shooting down five enemy aircraft at night. At the time he was serving as O-in-C of Night Composite Squadron THREE (VC-3) operating from USS PRINCETON (CV-37). Records show that he was the only Navy ace, the only ace who flew prop fighters and the only night-fighter ace. Falling before his guns in night combat were two Yakolev (Yak-18) intruder bombers and three Lavochkin (LA-11) fighters of the communist forces. For this action he was awarded the Navy Cross, our nation's second highest decoration.

aircraft, I think you'll find that each individual aircraft you fly is slightly different and has its own characteristics. Knowing what to look for and expect in your aircraft and having intuition based on experience in the plane certainly saved many pilots' lives and enabled us to complete missions that would not otherwise have been successful. Although there wasn't as much command emphasis on safety then as there is today, each pilot was very interested in his own safety and flew accordingly.

Let's speak briefly about the *Corsair*. The model which we used in Korea was the F4U-5N, designed specifically for use as a night fighter and was at that time the hottest version of the *Corsair*. Our bird had an R2800-32W engine which, although capable of producing considerably more power, was throttle-stopped at 2300 horsepower.

It was equipped with an APS-19A radar, which was a development or outgrowth of the old WW II APS-4 and APS-6 radars. The APS-19A had an excellent range in search, an excellent range in beacon and a fair range in the intercept mode. Fair at that time was something like three and one-half miles. This was with the gear peaked at its very best. Most of the time it was good for about two and one-half miles.

For armament we had four 20mm cannon and could carry 12 bombs on the wings or eight bombs on the wings plus two centerline bombs. Our missions were four to four and a half hours long which necessitated carrying a 150-gallon auxiliary fuel tank. Additionally, on one of the centerline racks we carried a 500-pound bomb. On the outboard wing racks we usually carried 250-pound bombs equipped with daisy-cutter fuzes.

Our primary targets were the interdiction type – trucks and trains. Since we were bombing at night we wanted a bomb that had the greatest area of dispersal when it exploded. The 250-pound bomb with the daisy-cutter fuze was ideal for this purpose. Use of the 500-pound bomb was not too satisfactory. Despite every effort we were unable to ensure better than a 70-percent detonation rate, most likely because both the bombs and fuzes had been manufactured during WW II and were just too old to do the job.

The 20mm cannon was our most effective weapon. It could be used against any type of target and was very flexible. We carried 200 rounds per gun and normally fired down to a 50-round low limit per gun. Although we had standard loads issued by Task Force 77, the choice of ammo was generally left to the crew. Our recommendations were given every consideration by the Admiral and he was most responsive to our suggestions. My personal choice was a full load of HEI (high explosive incendiary) since the trucks were carrying incendiary type loads of fuel, ammunition and other supplies. We found this to be a most effective weapon. The resultant large number of trucks destroyed was extremely gratifying.

The F4U-5N was the heaviest *Corsair* built, weighing

The author entering the cockpit of NP 21, his F4U-5N Corsair at King 6.

The author is shown here checking the aircraft maintenance with plane captains, A.L. Gabbard AM1C and G.P. Ballard AO2C.

A pre-flight briefing session at King 6, Pyongtaek, Korea.

more than 14,000 pounds empty. With the addition of ammo, bombs and fuel its weight escalated rapidly. One of the problems unique to this aircraft was the length of its nose, thus giving rise to its popular nickname – the *Hose Nose*. At sundry times it has also been known as the *U-Bird, Bent-Wing Monster* and *Ensign Eliminator,* to name but a few. But the long nose was the feature that gave the pilots the most difficulty. This difficulty was evidenced during night carrier landings when it seemed to the pilot that he had 40 feet of nose sticking out in front of him. Fortunately, the *Corsair* was equipped with flame dampeners to hide the flame from the exhaust stacks. This was a great help in coming aboard at night. But since we were landing aboard an axial deck carrier, the angle deck not yet being in vogue, it became a matter of being able to see the LSO. Not having the mirror at that time, every landing was a thrill, especially on nights when we had a light mist or a slight hydraulic leak (which was common to most *Corsairs.*) My personal choice of landing technique, and one I think most pilots used, was to be in a continuous turn up to the last second with a very short straightaway so you could see the LSO at all times.

Most of us preferred a catapult launch in this bird, although as a rule prop aircraft were still being launched

with a deck run. The reasoning for this was simple – the F4U-5N had an automatic engine control unit which required time to arm. In some planes it took as long as 11 seconds to become fully armed. This meant that on deck launches, the pilot had to hold maximum power as long as possible without digging the prop into the deck before releasing the brakes to start the takeoff run. On several occasions I didn't get full power until two-thirds of the way down the deck and almost "dribbled" off the bow. The cat shot was always a good solid feeling. One disadvantage that did occur on catapult shots was caused by bridle slap punching holes in the auxiliary fuel tanks. This did make for shorter hops!

Early in 1953 our Task Force got a call saying that Admiral Jocko Clark had put us on the line. The Air Force had been complaining that they were losing some of their F-94 Charlies. This was an all-weather version of the old F-80. These squadrons of F-94Cs had been charged with intercepting the enemy night intruder aircraft used to bomb the cities, particularly Seoul and Inchon. The Air Force had not been successful in stopping them. One squadron apparently lost the CO, XO and Ops Officer by flying into mountains due to the fact that their aircraft were too fast to intercept the

Adding a centerline tank for endurance insurance.

relatively slow flying prop aircraft such as the Yak-18, Lavochkin-11 and the old TU-2 bombers. The Communists had been most successful in their efforts and just before Admiral Clark made the call to our Task Force, had bombed Inchon destroying some 15 million gallons of aviation fuel and other supplies. The Air Force bemoaned this fact and Admiral Clark responded, "We have just the aircraft and pilots for you and they're eager to do the job. Our *Corsair* night fighters are out aboard ship and they can fly as slow as is necessary."

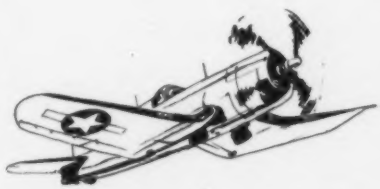
General Anderson, who was Commanding General of the Fifth Air Force in Korea, invited us to come in. Four of us flew in to K-14 airfield, which was just south of Seoul and were briefed by the Air Force and by Joint Operations Center, Korea. Then we were shifted to K-16 field about 50 miles south of Seoul. Our CAP (Combat Air Patrol) barrier was just south of the bomb line which had been established at the armistice talks then going on.

Our planes were controlled by Joint Operations Center radar at Seoul and also by our local GCA radars. My first occasion to attack an enemy aircraft at night came while being controlled by a fine radar operator at Pyontaek. We were launched to defend against some enemy aircraft which were heading over our area, perhaps on agent drops. I was vectored on a contact and immediately got a visual on an enemy aircraft which appeared to be a single-wing Yak-18. After flying into position to fire on him, I got the clearance which was required at that time. I then made my firing run and had the unique experience of seeing him burn and go down. Immediately thereafter I was vectored on another aircraft of the same type and the same circumstances obtained. Again I was using nothing but an HEI load which proved to be most effective for air-to-air combat.

On a subsequent night I was again vectored against enemy formations and was able to get two more aircraft following two intercepts.

My final victory came as the result of a special scramble when I was sent up to relieve another pilot who had radar trouble and was unable to complete his mission. On arriving at the scene the other pilot informed me that he had a target but had lost it when his radar went out. Joint Operations Center put me on search, vectored me on the target and I was fortunate to get a final shootdown after a very exciting chase through intense anti-aircraft fire.

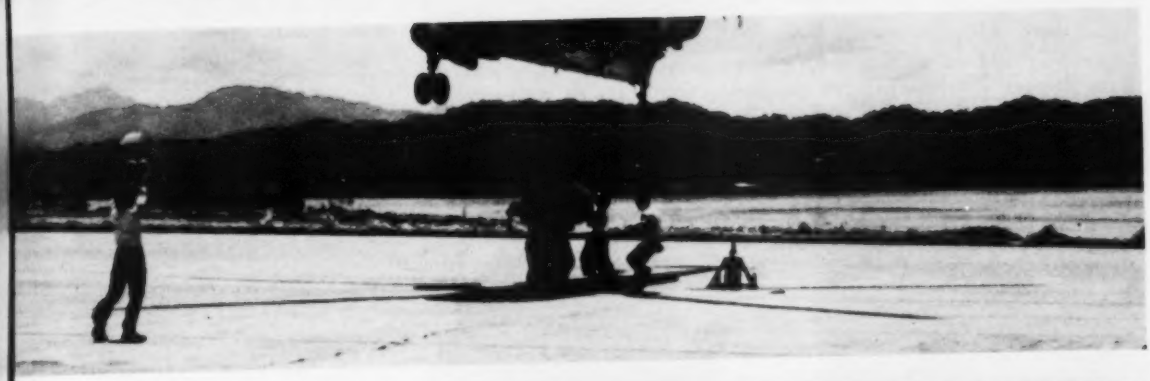
The Korean experience was most interesting and rewarding. The *Corsair* came through beautifully; she was a sturdy old bird and one that we all loved. Had we had the benefit of modern day NATOPS, modern ordnance and tactical procedures, and a good means of exchanging ideas and experiences, we most assuredly would have been able to employ our birds even more effectively.



PRECISION LANDING

A STUDENT pilot who successfully lands on the correct runway at the correct airport may consider that he has made a precision landing. Yet, he hasn't. An F-4 or *Gator* pilot who catches the No. 3 wire every time may think he makes precision landings but he couldn't be further from the truth. The P-3 or C-130 pilot who consistently lands just past the numbers may think his landings are precision landings but he's wrong too. Well, if one of the above isn't a precision landing, what is? Give up? Friends, a precision landing is landing an SH-3A *on a jack*! (Note: Not recommended for fixed-wing types.)

It was a beautiful day for flying at NAS Farwest as the photographs attest. The sun was shining brightly, some fair-weather cumulus clouds were in evidence, the temperature was not too hot and a gentle 10-knot tradewind was blowing. Conditions were ideal for a helicopter flight to take four passengers to a not-too-distant naval installation. Well sir, after a routine takeoff and flight the pilot made an approach to land to drop off his passengers. The landing area was one which had been frequently used. As a matter of fact the copilot on this flight had just been there two or three hours before on another flight. Anyway, as you can tell from the photograph above the area *looks* OK. *(A photographer snapped the picture just before the left main gear touched down. The H-3 always lands on the left main gear first. – Ed.)* However, some days it just doesn't pay to get up and this was one of those days for the pilot. The photo at left shows what happened as the weight of the helo settled on the gear. The pilot sharply and smartly lifted the helicopter into a hover, ascertained that the damaged sponson and gear would remain attached and returned, at reduced speed, to NAS Farwest. He knew he was going to need help back at the ranch, so he used the radio to alert his squadron. The rest of the photographs show the initial inspection of his bird, the gathering of the clan, the workers at work and finally the PRECISION LANDING. ◄



LETTERS

To LOOK is one thing.
To SEE what you look at is another.
To UNDERSTAND what you see is a third.
To LEARN from what you understand is still something else.
But to ACT on what you learn is all that really matters.

Safety Review

Dog Tag

Columbia, S.C. – Note that in Fig. 1 accompanying the letter to the editor, "Arm Pocket Cover," page 45, APPROACH, February 1971, the pilot has a dog tag chained to the zipper slide on his left breast pocket. Normally,

nomex flight suits are issued with a nomex tie string attached to each zipper slide. General NATOPS, OPNAVINST 3710.7E, 701A. (5), states, "Identification Tags; to be worn around the neck." Any identification tag placed on a zipper tab lock must be in addition to the two tags required to be worn around the neck.

LT E. J. Furlong, II, USNR
Executive Officer
U.S. Navy Recruiting Station

● You are absolutely correct about the General NATOPS requirement for dog tags to be worn around the neck. Thanks for the reminder.

Another Reminder

FPO San Francisco – Enclosed is a photo of a regulation Navy safety shoe. The mishap occurred when a main landing gear of an A-7B attached to VA-155 rolled over a plane captain's foot while he was helping to spot the aircraft on the hot spot. His injury was minor (broken big toe). With the A-7 weighing approximately 24,000 pounds at the time, it is obvious that the injury without the steel toe shoe would have been extensive. This can be classified as "Another Reminder."

LT M. W. Samuels, USN
ASO, VA-155

Water Survival Training

San Diego, Calif. – I am writing in regard to a letter to the editor titled "Water Training" from PR2 Richard A. Webber and the comment which followed in the November 1970 APPROACH. PR2 Webber explains what is required for flight personnel in the way of water survival training while attached to his command and the subsequent editor's comment indicates that the Naval Safety Center has forwarded his material to the Chief of Naval Operations (OP-56) for possible use in developing a standardized water survival training syllabus.

Although PR2 Webber's curriculum is good for a command-sponsored program, it should be pointed out that a standardized water survival training syllabus already exists at the Fleet Airborne Electronics Training Unit, SERE Department, NAS North Island, San Diego, Calif. The name given to this course is DWEST (Deep Water Environmental Survival Training) and it is conducted for all COMNAVAIRPAC flight personnel who fly over water, in accordance with the provisions of COMNAVAIRPACINST 3131.11.

CNO and CINCPACFLT establish and promulgate the policies and guidance for the training of PACFLT personnel in SERE phases I-IV. COMNAVAIRPAC is designated as CINCPACFLT's agent for SERE matters. The DWEST portion of SERE has been in existence since 1967. The DWEST personnel are always open to suggestions regarding course improvement.

PN1(DV) Rene A. LaMarche, Jr.
FAETUPAC, NAS North Island

● The DWEST course is a standardized water survival training syllabus approved for AIRPAC but it is not an all-Navy water survival training syllabus. The latest word on an all-Navy syllabus, which the Naval Safety Center has been advocating, is that CNO has approved a syllabus developed by BUMED (Code 512) as part of the aerospace physiology training program. Three aviation physiology training units are implementing the new water survival syllabus – Miramar, Norfolk and Quonset Point. Indications are that it will be promulgated for Navy-wide use by the next change to General NATOPS (OPNAV 3710.7E).

The excellent FAETUPAC water survival training program was the subject of a recent APPROACH feature, "Life

THE DEPARTMENT of Air Force, Headquarters Aeronautical Chart and Information Center, St. Louis, Missouri has notified the Naval Safety Center of the following changes to FLIP documents:

• *DD-175.* The location identifier, if assigned will be used in the destination block (e.g., KSKF vice Kelly AFB) to facilitate computer

FLIP Changes

processing of flight plans. (Section II, FLIP Planning, N&S America and Pacific editions.)

• *Airport Traffic Area:* The vertical limits of an airport traffic area are now up to but not including 3000 feet above the airport elevation (Special Notice, Section II, FLIP Planning).

• *FLIP Planning:* Section IV of FLIP Planning has been deleted. Users should remove Section IV and the accompanying separator. (Special Notice, March issues of the IFR-S.)

• *ARTC Radar:* "Radar contact" will not normally be reported to the pilot when he is handed off to another controller after radar contact has once been established (IFR-S), Pilot Procedures with ARTC Centers.

Ensurance" by LCDR E. A. Wilson, in the March 1971 issue.

Why Not Safety Strap?

NAS Norfolk – I found the letter "Why Boots?" in the February APPROACH very interesting. The writer makes a good point about the value of safety boots. However, I have some thoughts on the part that said "A short delay ensued while the (DD) deck crew found a short piece of line to secure the man to the (Boyd) seat." BACSEB (BUWEPS Aviation Clothing and Survival Equipment Bulletin) 26-61 outlines the requirement for and installation of a safety strap on helo rescue seats, which would include the Boyd seat. Use of a safety strap, it seems to me, would have been more efficient and would have saved time.

Riggermouse

• We really can't tell from the "Why Boots?" letter whether or not this particular Boyd seat had such a safety strap installed but if there was one it was not used. Helo crews which don't have safety straps on their rescue seats should check out this BACSEB.

Medicine "X"

NAS Anyplace – I view with alarm the current television commercial for an over-the-counter, non-prescription medication for the relief of colds and/or cold symptoms. The commercial depicts a ski-equipped aircraft landing on the snow in a place called Kenai, Alaska, while the narrative indicates something to the effect that "this is no place to have a cold" and suggests that the pilot, in order to fly home to his family, take Medicine "X."

The implication of the commercial is that taking drugs and flying are, at least, acceptable. This, of course, is contradictory to some of the cardinal tenets of aviation and aviation safety. Two of these basics are: 1) *Never* fly with a cold; and 2) Never fly when taking medications (without the express authorization of a flight surgeon).

Flying has been defined as "long periods of monotony interspersed with short periods of stark terror." Taking medications which affect the respiratory system (such as Medicine "X") can have deleterious and serious consequences with respect to flying. Antihistamines very frequently induce drowsiness which, when coupled with the monotonous phases of flying, could lead to a pilot falling asleep. Drugs often affect reaction time and vision – either of which could conceivably result in an accident and injury or death, not only to the occupants of the aircraft but to innocent bystanders as well.

In view of the above, I urgently exhort the appropriate Federal agency/agencies to, singly or in concert, ban this commercial specifically and other such advertising as being inimical to the best interests of the public.

Anypilot

• On the strength of your report and others like it, Commander, Naval Safety Center has recommended to the president of the pharmaceutical firm manufacturing Medicine "X" that this particular television commercial be withdrawn in the interest of military and civilian aviation safety. We understand that the FAA is contemplating similar action.

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Vol. 16 **approach** No. 11

RADM W. N. Leonard
Commander, Naval Safety Center

Our product is safety, our process is education and our profit is measured in the preservation of lives and equipment and increased mission readiness.

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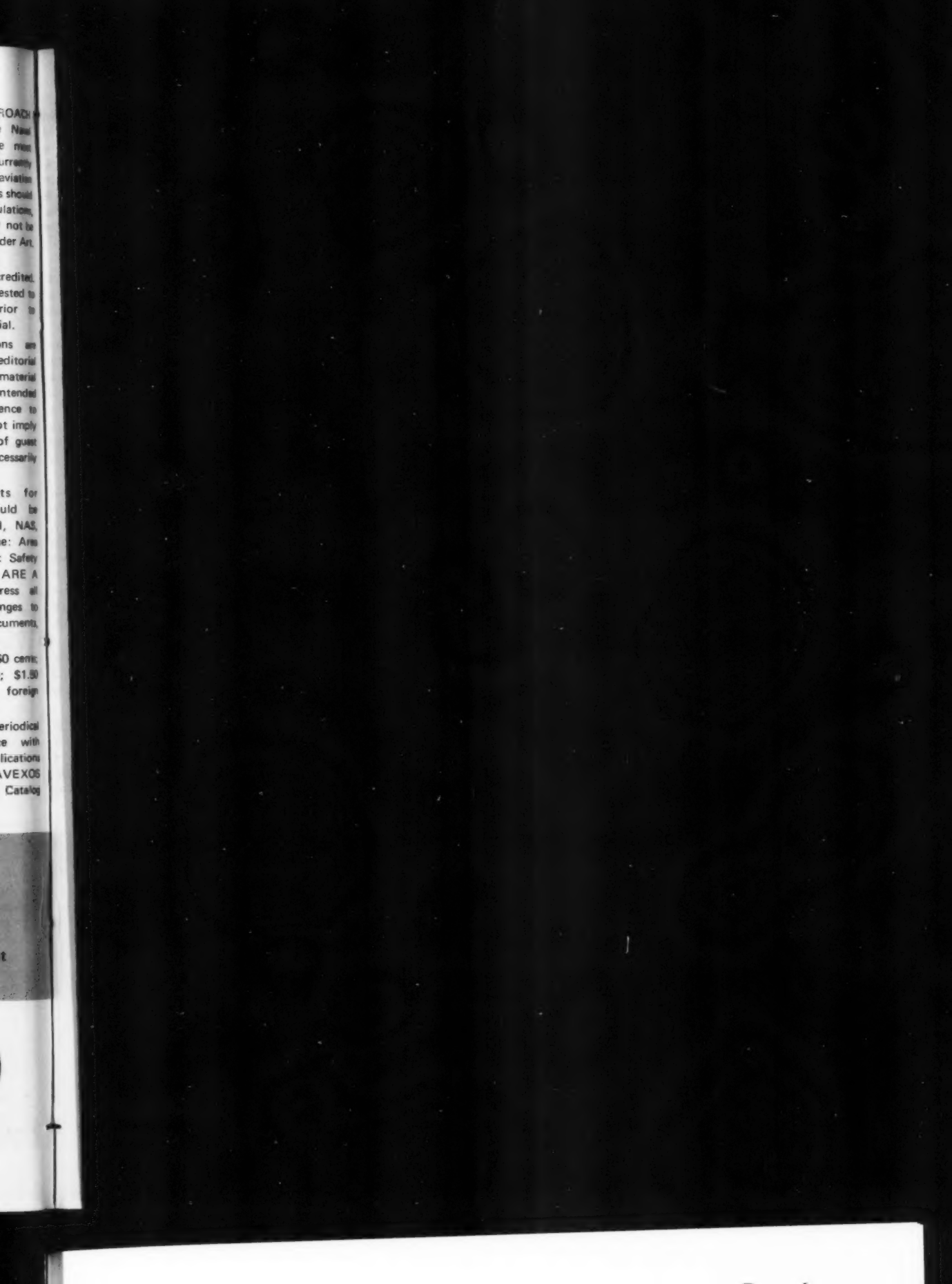
Credits

Staff artist Blake Rader delved into World War II memorabilia for this month's cover to portray one of the most famous fighters of all time; the Vought *Corsair* F-4U, this one being the F-4U1. Inset line drawings by Ed Richardson show the progressive development of the *Corsair* and the F-4U-5N flown by the author of "A *Corsair* Pilot Reminisces." **Pg 17-23** Photos: PH1 Ron Bartell. **Pg 26-32** Photos: PHCS V.O. McColley. **Pg 40-43** Photos: Guy P. Bordelon.



Write it Right

Dear Pilot:

When I start to fix an aircraft I'm sort of like Jack Webb: *I need the facts*. Often you don't give 'em to me – in writing, that is. The *proper* reporting of your inflight trouble will not only cut down on my work but will give you a safer aircraft to fly.

Seems that some pilots figure a mechanic spends his time drinking coffee, changing spark plugs and writing "Ground checks OK." on forms. This is not true. Quite often, in fact, your grumbling about aircraft condition should be aimed at yourself. In some instances brevity is OK but the lack of detail in many writeups is bad.

Like most mechanics, I want to do a good job, but without your help I don't have a chance. Without a few clues I'm lost and I get real frustrated going around in circles trying to figure out where to start.

Perhaps a few simple rules will help straighten things out. How about these?

Write it up! Your talking about it with other pilots is fine but tell me, too.

Write in *all* the details. If it's about an engine, tell me the altitude, power settings, instrument readings, temperature and anything else you think of. If it's about a radio, tell me which channel and whether it's the receiver or the transmitter and what kind of noise it makes. Be specific – don't be afraid to use more than one block for the writeup if you need more space. *Tell me everything.*

Tell me what checks you have made and what the results were. You seldom ever quit using a piece of equipment without some effort to make it work or find out what's wrong. Remember, I may not be able to duplicate your tests on the ground.

Keep your kneeboard handy – write everything down as it happens. You'd be amazed at the items you forget after you are on the ground and in a hurry to leave.

I hope I've made my point, sir. With your help maybe I can get the maintenance officer off my back, give my ulcers a rest and even quit beating my wife. Thanks,

Joe Maintenance

Courtesty HT-8

P.S. If your handwriting is poor, please print!

THIS MAN WANTS YOU: ALIVE.
DRIVE WITH CARE: EVERYWHERE

E.
RE